Reg.No.U72900AP2021PTC119970

Spypro Internship Certificate

SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

Cyber Forensic | Cyber Security | Training&projects

This is to Certify that Mr. / Ms. CHENAMRAJU MANIKANTA VARMA

Has Successfully Completed the Internship

CYBER SECURITY

Start **01-07-2022** End Date **30-08-2022**

Register No. 20KT1A04E0 at Spypro Education Center.

#40-1-149, Opp:Hotel kandhari, Siddhartha Women's College Road,
Labbipet, Vijayawada -520010

Course Co-Ordinator

SPYPRO SECURITY SOLUTIONS PVT. LTD. VIJA-10.

www.spyprosecuritysolutions.com

Reg.No.U72900AP2021PTC119970

Spypro Internship Certificate

SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

Cyber Forensic | Cyber Security | Training&projects

This is to Certify that Mr. / Ms. CHILAKA PRANAV KUMAR

Has Successfully Completed the Internship

CYBER SECURITY

Start **01-07-2022** End Date **30-08-2022**

Register No. 20KT1A04E2 at Spypro Education Center.

#40-1-149, Opp:Hotel kandhari, Siddhartha Women's College Road,
Labbipet, Vijayawada -520010

Course Co-Ordinator

www.spyprosecuritysolutions.com

Reg.No.U72900AP2021PTC119970

Spypro Internship Certificate

SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

Cyber Forensic | Cyber Security | Training&projects

This is to Certify that Mr. / Ms. YADAVALLI MOHAN

Has Successfully Completed the Internship

CYBER SECURITY

Start **01-07-2022** End Date **30-08-2022**

Register No. 20KT1A04D3 at Spypro Education Center.

#40-1-149, Opp:Hotel kandhari, Siddhartha Women's College Road,
Labbipet, Vijayawada -520010

Course Co-Ordinator

SPYPRO SECURITY SOLUTIONS PVT. LTD. VJA-10.

www.spyprosecuritysolutions.com

Reg.No.U72900AP2021PTC119970

Spypro Internship Certificate

SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

Cyber Forensic | Cyber Security | Training&projects

This is to Certify that Mr. / Ms. ARUMURI LOKESH

Has Successfully Completed the Internship

CYBER SECURITY

Start **01-07-2022** End Date **30-08-2022**

Register No. 20KT1A04D4 at Spypro Education Center.

#40-1-149, Opp:Hotel kandhari, Siddhartha Women's College Road,
Labbipet, Vijayawada -520010

Course Co-Ordinator

SPYPRO SECURITY SOLUTIONS PVT. LTD. VJA-10.

www.spyprosecuritysolutions.com

Indian Servers

Vijayawada,
Dt. 20-May-2022

Offer letter for the INTERNSHIP at INDIAN SERVERS

Dear Ms. Tadiboina Sai Teja

At the onset, let me congratulate you upon being selected for the INTERNSHIP program At INDIAN SERVERS

Indian Servers is one of the growing IT services companies. We provide complete end- to-end outsourcing solutions for various industries. We have a comprehensive set of solutions for the Educational Institutes, banking, finance, insurance, manufacturing, retail & distribution and contracting sectors. Indian Servers has marketing presence & client base in all over India, United States, United Kingdom, Australia UAE etc. The company has operations and a customer base spanning Across 8 countries including software development centres in India. Internship period will be Minimum 6 weeks from the date of offer. Basic training will be provided to you to accomplish tasks Your INTERNSHIP with Indian Servers shall obey the below mentioned terms and Conditions.

1. During the period of INTERNSHIP you will perform the roles of Software Trainee
2. Your INTERNSHIP will continue till the completion of the project and for a minimum of 6 Weeks to 9 Weeks.
3. Any training related coaching or training will be provided to you by the highly qualified technical team at INDIAN SERVERS.
4. During the INTERNSHIP, if your performance reaches the standard and expectation of the company, the A BASIC STIPEND would be offered to you. However, this does not mean A GUARANTEED STIPEND would be provided to you.
5. During the INTERNSHIP, you are requested to maintain the decorum of the COMPANY, as this will have an impact on your project completion certificate

Indian Servers

6. You will come under NDA (Non-Disclosure Agreement), which in its meaning shall mean but not limited to

a. You shall not disclose any information related to the projects, company Sensitive information, technical details, assets, products and anything of similar importance, to your friends, family members or any other known or unknown people.

b. All the material, whether movable or immovable, intellectual or physical, shall be carried only with in the INDIAN SERVERS office inside premises only to the extent to discuss it with technical team of the company. Other than this, any such material is strictly prohibited from being carried.

7. Any breach in the RULE No. 6 shall be considered as a legal punishable Offence and you shall be liable to produce in the court of LAW.

8. In case of any behavioural issues from the colleagues, it shall immediately Be brought to the notice of the higher official in the company.

9. Any behavioural issue from your side, if reported or observed, shall be considered seriously and an appropriate action will be taken, including Rustication of your internship with Indian Servers.

10. Indian Servers does not hold any responsibility for all your belongings during the entire internship period.

11. Completion letter will be issued only if you are active throughout the internship period by completing all assignments and project work given to you

I and TEAM INDIAN SERVERS welcome you all, to have a successful technical journey.

Your UID: **IndServ22a560**

With warm regards,

I agree to all terms and Conditions

Sai Satish

D. SaiSatish
CEO, Indian Servers

Tadiboina Sai Teja

PS: A signed copy of this document should be submitted in the office at the earliest.
This document can be verified for next 6 years of the date of issued subject to conditions

Reg.No.U72900AP2021PTC119970

Spypro Internship Certificate

SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

Cyber Forensic | Cyber Security | Training&projects

This is to Certify that Mr. / Ms. BUDIDA AVINASH

Has Successfully Completed the Internship

CYBER SECURITY

Start **01-07-2022** End Date **30-08-2022**

Register No. 20KT1A04D7 at Spypro Education Center.

#40-1-149, Opp:Hotel kandhari, Siddhartha Women's College Road,
Labbipet, Vijayawada -520010

Course Co-Ordinator

SPYPRO SECURITY SOLUTIONS PVT. LTD. VJA-10.

www.spyprosecuritysolutions.com

INTERNSHALA

Certificate of Selection

Rajitha Hyma

from **PSCMR College Of Engineering & Tech.** has successfully secured **Campus Ambassador** internship at **Shaastra, IIT Madras** through Internshala.

Sarvesh Agrawal
Founder & CEO, Internshala

Date of certification: October 17, 2020

Certificate Number: E4F6D47E-9BB9-F505-CD3A-5D60D4FC912D
For certificate authentication please visit https://internshala.com/verify_certificate

Scholiverse Educare Pvt. Ltd.,
B-610, Unitech Business Zone,
Nirvana Country, South City 2,
Gurgaon, India - 122018

Date - 20/05/2020

TO WHOM IT MAY CONCERN

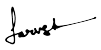
This is to certify that Naga Chaitanya Lakshmi Potti, a student of PSCMR College Of Engineering & Tech., was an active member of the Internshala's campus ambassador program - Internshala Student Partner (ISP) 17 during the period of March 2020 to May 2020.

At Internshala, we consider ISPs, our biggest strength when it comes to educating college students across the world about the power of internships and online trainings.

During this period, Naga Chaitanya Lakshmi promoted Internshala and its products successfully and showed genuine sincerity and willingness to learn while taking on new assignments and challenges.

We wish Naga Chaitanya Lakshmi good luck for all the future endeavours.

Kind regards,



Sarvesh Agrawal

Founder and CEO - Internshala

Contact at: isp-hiring@internshala.com

Cogent Web Services

Internship

Certificate

29-10-2019

Neeha Lakshmi Malluvalasa

Has successfully completed

One Month Business Development Internship

At **Cogent Web Services** with excellent performance during Internship Period with

- Excellent Performance during Internship
- Excellent Sales Promotion
- Excellent Communication Skill

Of Company Services and he/she has scored **98%** Overall Marks in all Activities done during Internship Period.

PASSED

SANJAY KUMAR

Founder & CEO
Cogent Web Services

Deloitte.

InsideSherpa

Inspiring and empowering future professionals

Tejaswini Malaga

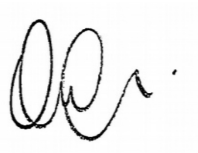
Technology Consulting Virtual Internship

Certificate of Completion

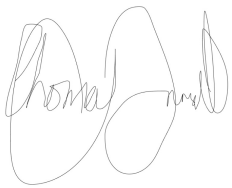
June 2nd, 2020

Over the period of May 2020 to June 2020, Tejaswini Malaga has completed practical task modules in:

- Understanding Cloud Computing
- Cloud Feasibility Assessment
- Cloud Readiness Assessment
- Client Discovery
- Design a Business Case
- Considerations For Mobilisation
- Define the project approach
- Conduct a market scan
- Further analysis & solution presentation



Danielle O'Leary
Senior Consultant
National Graduate Talent Acquisition Team



Tom Brunskill
CEO, Co-Founder of InsideSherpa

Enrolment Verification Code 9Bj7thG2MrhXtvpey | User Verification Code Jvj2i656tyRSLsbmC | Issued by InsideSherpa

April 2, 2022

Dear Kunam Devisree,

Sub: Letter of Engagement as Intern

We are pleased to inform you that you have been selected for undergoing Internship in our organization Wipro Limited (Wipro) as Intern under the following terms and conditions:

1. Nature of Engagement

You will be engaged as an **Intern at Wipro.**

2. Duration of training

The duration of **internship** is **3 months** starting from **6th April 2022**. During this period, Wipro shall evaluate your performance. Unless Wipro extends the period of internship, in writing, solely at its discretion, your internship shall automatically stand terminated at the expiry of the internship period.

3. Verification Report

Your engagement with Wipro will be subject to receipt of satisfactory report with regard to verification of the particulars furnished by you in your application and information given at the time of Interview. If any declaration or information furnished to Wipro proves to be false or if you have wilfully suppressed any material information, in such case, you will be liable to removal from training without any notice.

4. Obligations and Responsibilities

a. During your internship period, Wipro expects you to undergo training in any department / section in which you are placed with high standard of initiative and efficiency. You shall devote yourself exclusively for undergoing training. You shall not take up any other work for remuneration (part-time or otherwise) or work on advisory capacity or be interested directly or indirectly in any other trade or business (except as share-holder or debenture holder) during the training period without obtaining permission in writing from the appointing authority at Wipro. You will be governed by the service rules / standing orders, policies and regulations as may be promulgated by Wipro from time to time in relation to conduct, discipline and other matters. You will not seek membership of any local or public bodies without first attaining specific permission from the appointing authority at Wipro. You are expected to comply with the policies of Wipro including the Code of Business Conduct and other policies of Wipro as they form an integral part of the terms of your training with Wipro.

   Consequently, you are required to understand the scope and intent behind these policies and to comply with the same. These Policies are updated / modified on a periodic basis and new Policies may be introduced and notified to employees/trainees from time to time and you will be required to comply with the same. Any matter or situation or incident that may arise that could potentially result, or has resulted, in any violation of the Policies or the terms of your employment, shall immediately be brought to the notice of Wipro and appropriate disciplinary action will be initiated.

b. During the training period, if you conceive any new or advanced method of improving processes / formulae / systems in relation to the Business or Trade of Wipro, such developments will be fully communicated to Wipro and will be the sole property of Wipro. In consideration of the opportunities, training and access to new techniques and know-how that will be made available to you, you will be required to comply with the Confidentiality Policy of Wipro. Therefore, please maintain all Confidential Information as defined from time to time in the Confidentiality Policy of Wipro, as secret and confidential and do not use or disclose any such Confidential Information except as may be required under obligation of law or as may be required by Wipro and in the course of your training. This covenant shall endure during your training and beyond the cessation of your training with Wipro.

c. During the training period and thereafter, you will not pass onto anyone in writing or by word of mouth or otherwise, particulars or details of work, processes, technical know-how, research carried out, security arrangements, administrative and organization matters of confidential or secret nature, which you may come across during your training period or become known to you by virtue of your undergoing training in Wipro or otherwise.

d. In connection with your internship and during the term of your internship, upon conception or creation, you shall disclose and assign to Wipro as its exclusive property, all inventions, ideas, concepts, discoveries, techniques, and improvements (including without limitation legal documents, training materials, computer software and associated materials) developed or conceived by you solely or jointly with others (whether or not during business hours), and shall comply with the Policies of Wipro in relation to Intellectual Property.

5. Posting

During your training period, you are liable to be transferred or assigned to training in any division / department / establishment or location at which Wipro or its associate companies have their offices or operation and whether at present existing or which may be set up in future at any time and at any place in India, without any increase in stipend. On such posting, you will be governed by the policies, rules and regulations as applicable in that Unit / Branch / Establishment.

6. Travel

You will be required to undertake travel as required by Wipro and you will be paid travel expenses as per Wipro rules.

7. Termination

Notwithstanding any of the clauses of this letter of engagement, Wipro reserves the right in its sole discretion of terminating this agreement during the training period without assigning any reason by giving one week's (7 days) notice or payment of one week's stipend, in lieu of notice.

8. Training Hours and Holidays

As an intern you will be called upon to undergo training during the hours and days as may be fixed by Wipro. Normally all Sundays will be weekly holidays together with all National and Festival Holidays observed by the establishment.

9. After completion / termination of internship

On completion / termination of internship, you will immediately surrender to Wipro all specifications, documents, literature, drawings, records etc. belonging to Wipro or relating to its Businesses and shall not take or retain any copies of the said items.

10. Date of commencement of training

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement within one week, duly signed by you, in token of your acceptance of the offer and report for training on or before the date of commencement of training. While reporting for training, please bring 3 copies of your latest passport size photographs and two copies each of your certificates and testimonials along with the originals. The original certificates will be returned to you after verification.

Yours sincerely,
For Wipro Limited,

Aparna Shailen
General Manager - Human Resources

<u>Endorsement:</u>

1. I accept the terms and conditions stipulated in the above letter of engagement.

2. I shall report for internship on

ANNEXURE I

CONFIRMATION ON SHARING PERSONAL INFORMATION (AS REQUIRED UNDER INFORMATION TECHNOLOGY ACT, 2000)

I Kunam Devisree, confirm that I am voluntarily sharing my Personal Information with Wipro Limited ('Wipro') for the following purposes:

a. validating my curriculum vitae and retaining records on the same for any future reference/verification;

b. processing my application for internship including background verification checks;

c. Internship related actions including record keeping, processing training stipend and any action required in the context of my training with Wipro.

In this context, I also agree to the retention of such Personal Information by Wipro for any future reference/verification and authorize Wipro to transfer the same to a third party.

I understand that 'Personal Information' means any information, relating to me that is available with Wipro and is capable of identifying me.

ANNEXURE II

CONFIDENTIALITY & NON-DISCLOSURE AGREEMENT

This non-disclosure agreement ("**Agreement**") is made on this the [ ] day of [ ] between

Wipro Limited, a public limited Company incorporated under the Indian Companies Act, 1913, and existing under the Indian Companies Act, 1956, having its registered office at Dodda Kannelli, Sarjapur Road, Bengaluru 560-035.

And

_____[Name of the Intern], S/o / D/o
_____,

Residing at_____
_____

(Hereinafter referred to as "**Intern**" which expression shall mean and include his/her representatives in interest, assurers and guarantors).

WHEREAS:

The Intern has expressed his/her desire to be trained with Wipro for a period of _____ (**"Internship Period"**);

Wipro has accepted the Intern's application subject to the Intern adhering to and complying with certain covenants governing his or her movement within Wipro premises, conduct, and other tasks whatsoever which they may be allotted from time;

During the term of the internship, the Intern may have access to certain information which may be proprietary and/or of confidential nature (**"Confidential Information"**, as more particularly described below).

NOW THEREFORE in consideration of the Agreement herein by the parties hereto and such additional promises and understandings as are hereinafter set forth, the parties agree as follows:

1. For purposes of this Agreement, "**Confidential Information** "means, with respect to Wipro, any and all information in written, representational, electronic, verbal or other form that is disclosed to Intern by Wipro or which Intern becomes aware of in the course of the internship, including without limitation, information relating directly or indirectly to the present or potential business, operation or financial condition, pricing, legal cases pertaining Wipro, marketing plans or strategy, volumes, services rendered, customers' and suppliers' names or lists, any customer information, financial or technical or service matters or data of or relating to Wipro and any information identified as being proprietary and/or confidential and any information which might reasonably be presumed to be proprietary or confidential in nature, excluding any such information which (i) is known to the public (through no act or omission of Intern in violation of this Agreement); (ii) was known to Intern prior to its disclosure under this Agreement; or (iii) is required to be disclosed by governmental or judicial order, in which case Intern shall give Wipro prompt written notice, and use reasonable efforts to ensure that such disclosure is

accorded confidential treatment and also to enable Wipro to seek a protective order or other appropriate remedy.

2. Nothing contained hereunder shall be construed as creating, conveying, transferring, granting or conferring by Wipro on Intern any rights, license or authority in or to the Confidential Information.

3. Intern agrees and undertakes that he/she shall not disclose or make available to any person (including the Institute) reproduce or transmit in any manner, or use (directly or indirectly) for his/her own benefit or the benefit of others, any Confidential Information, including without limitation, the use of the Confidential Information in any thesis or report required to be submitted by Intern under any course. Intern undertakes that he/she will not, without prior written consent of Wipro, use any Confidential Information in any of her future projects or presentations for any person, including the institute, nor shall he/she use any of the Confidential Information in his/her resumes or any application for prospective employment.

4. Intern shall use and/or protect the Confidential Information received by him/her with utmost degree of care and diligence.

5. Intern agrees that upon (i) termination/expiry of Internship Period, or (ii) at any time during its currency, or (iii) on Intern ceasing to be an Intern of Wipro, Intern shall promptly deliver to Wipro the Confidential Information and copies thereof in his/her possession or under his/her direct or indirect control, and shall destroy all memoranda, notes and other writings prepared by him/her or his/her subordinates based on the Confidential Information.

6. Intern acknowledges that the Confidential Information coming to his/her knowledge may relate to and/or have implications regarding the future strategies, plans, business activities, methods, processes and or information of Wipro or its affiliated companies which could afford third parties certain competitive and strategic advantage. Intern shall ensure that the use of such Confidential Information by the Intern shall not jeopardize or adversely affect in any manner such future strategies, plans, business activities, methods, processes, information, and/or competitive and strategic advantage of Wipro.

7. Intern acknowledges the quantum of damages and/or losses that Wipro may suffer as a result of the breach of this Agreement by the Intern and therefore, agrees to indemnify and keep indemnified Wipro against all loss or damage, which Wipro may suffer as a result of any such breach.

8. Intern hereby acknowledges and agrees that in the event of a breach or threatened breach by Intern of the provisions of this Agreement, Wipro shall without prejudice to any of its rights under this Agreement or in law have the right to claim damages and shall also be entitled to injunctive relief against such breach or threatened breach by Intern.

9. No failure or delay by Wipro in exercising or enforcing any right, remedy or power hereunder shall operate as a waiver thereof, nor shall any single or partial exercise or enforcement of any right, remedy or power preclude any further exercise or enforcement thereof or the exercise of enforcement of any other right, remedy or power.

10. This Agreement will be governed exclusively by the laws of India and, jurisdiction shall be vested exclusively in the courts at Bengaluru. This Agreement shall not be amended, assigned or transferred by either party without obtaining the written consent of Wipro.

11. The obligations of confidentiality shall survive the expiry or termination of the internship. Nothing in this Agreement is intended to confer any rights/remedies under or by reason of this Agreement on any third party.

12. If any term or provision of this Agreement is determined to be illegal, unenforceable, or invalid in whole or in part for any reason, such illegal, unenforceable, or invalid provisions or part(s) thereof shall be stricken from this Agreement and such provision shall not affect the legality, enforceability, or validity of the remainder of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement as of the date and year written above.

Yours sincerely,
For Wipro Limited,

Aparna Shailen
General Manager - Human Resources

☑ Accept ☐ Decline

Intern Name: Kunam Devisree

☑ **Signature** Kunam Devisree 2/4/2022 9:41 PM
(checking the checkbox above is equivalent to a handwritten signature)

Registered Office:

Wipro Limited
Doddakannelli
Sarjapur Road
Bengaluru 560 035
India

T :+91 (80) 2844 0011
F :+91 (80) 2844 0054
E :info@wipro.com
W :wipro.com
C :L32102KA1945PLC020800

23158747

A. Hari Santhap

19K71A05B7, CSE-B

tcs iON

tcs TATA CONSULTANCY SERVICES

Building on belief

Certificate of Achievement

Congratulations!

Hari Santhap

for successfully completing

TCS iON Career Edge - Young Professional

a course that covers

Communication Skills | Presentation Skills | Soft Skills | Career Guidance Framework | Resume Writing | Group Discussion Skills | Interview Skills | Business Etiquette | Effective Email Writing | Telephone Etiquette | Accounting Fundamentals | IT Foundational Skills | Overview of Artificial Intelligence*(Source: NPTEL)

Start Date: 05 Jan 2022 **End Date:** 25 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON Career Edge

CERTIFIED
Cert ID: 119854-20668011-1016
Date: 25 Jan 2022

D. Kavya
19KTIA0581
CSE-B

tcs iON

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Certificate of Achievement

Congratulations!

Dharapureddy Kavya

for successfully completing

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a course that covers

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Start Date: 18 Nov 2021 **End Date:** 23 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON Career Edge

CERTIFIED
Cert ID: 119854-20027392-1016
Date: 23 Jan 2022

I. SRI HARSHA
CSE - B
19K11A0589

TCS iON

TATA CONSULTANCY SERVICES
Building on belief

Certificate of Achievement

Congratulations!

SRI HARSHA

for successfully completing

TCS iON Career Edge - Young Professional

a course that covers

Communication Skills | Presentation Skills | Soft Skills | Career Guidance Framework | Resume Writing | Group Discussion Skills | Interview Skills | Business Etiquette | Effective Email Writing | Telephone Etiquette | Accounting Fundamentals | IT Foundational Skills | Overview of Artificial Intelligence*(Source: NPTEL)

Start Date: 01 Sep 2021 **End Date:** 11 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

TCS iON
Career Edge

CERTIFIED
Cert ID: 119854-19138410-1016
Date: 11 Jan 2022

S. Pradeep kumar
3rd year CSE
B-Section, 20KTSA0513.

tcs iON

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Certificate of Achievement

Congratulations!

SUBBANNAGARI PRADEEPKUMAR

for successfully completing

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Start Date: 05 Jan 2022 **End Date:** 24 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON
Career Edge

CERTIFIED
Cert ID: 119854-20670273-1016
Date: 24 Jan 2022

B. Harika
19K71A0571
CSE-B

tcs iON

TATA CONSULTANCY SERVICES
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Certificate of Achievement

Congratulations!

Harika Bogula

for successfully completing

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Communication Skills | Presentation Skills | Soft Skills | Career Guidance Framework | Resume Writing | Group Discussion Skills | Interview Skills | Business Etiquette | Effective Email Writing | Telephone Etiquette | Accounting Fundamentals | IT Foundational Skills | Overview of Artificial Intelligence*(Source: NPTEL)

Start Date: 06 Jan 2022 **End Date:** 23 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON
Career Edge

CERTIFIED
Cert ID: 119854-20671625-1016
Date: 23 Jan 2022

M. Sai Charita
20KT5A0508
CSE-B

tcs iON

tcs TATA CONSULTANCY SERVICES
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Congratulations!

Sri Charita

for successfully completing

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Start Date: 19 Nov 2021 **End Date:** 14 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON
Career Edge

CERTIFIED
Cert ID: 119854-20071182-1016
Date: 14 Jan 2022

19KTIA05A2
M. Nithin
CSE-B

tcs iON

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Congratulations!

nithin medikondu

for successfully completing

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a course that covers

Communication Skills | Presentation Skills | Soft Skills | Career Guidance Framework | Resume Writing | Group Discussion Skills | Interview Skills | Business Etiquette | Effective Email Writing | Telephone Etiquette | Accounting Fundamentals | IT Foundational Skills | Overview of Artificial Intelligence*(Source: NPTEL)

Start Date: 05 Jan 2022 **End Date:** 19 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
Tata Consultancy Services

tcs iON
Career Edge

CERTIFIED
Cert ID: 119854-20667817-1016
Date: 19 Jan 2022

19KTIA0590

J. Raja

tcs iON

TATA CONSULTANCY SERVICES

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III rd CSE-B

Certificate of Achievement

Congratulations!

Raja Jangam

for successfully completing

TCS iON Career Edge - Young Professional

a course that covers

Communication Skills | Presentation Skills | Soft Skills | Career Guidance Framework | Resume Writing | Group Discussion Skills | Interview Skills | Business Etiquette | Effective Email Writing | Telephone Etiquette | Accounting Fundamentals | IT Foundational Skills | Overview of Artificial Intelligence*(Source: NPTEL)

Start Date: 05 Jan 2022 **End Date:** 24 Jan 2022

Mehul Mehta

Mehul Mehta
Global Delivery Head - TCS iON,
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Start Date: 19 Nov 2021 **End Date:** 28 Jan 2022

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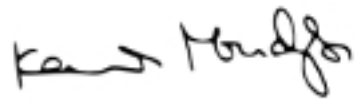

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IIT Bombay

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Dt. 12-May-2022

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At the onset, let me congratulate you upon being selected for the INTERNSHIP program At INDIAN SERVERS

Indian Servers is one of the growing IT services companies. We provide complete end- to-end outsourcing solutions for various industries. We have a comprehensive set of solutions for the Educational Institutes, banking, finance, insurance, manufacturing, retail & distribution and contracting sectors. Indian Servers has marketing presence & client base in all over India, United States, United Kingdom, Australia UAE etc. The company has operations and a customer base spanning Across 8 countries including software development centres in India. Internship period will be Minimum 6 weeks from the date of offer. Basic training will be provided to you to accomplish tasks Your INTERNSHIP with Indian Servers shall obey the below mentioned terms and Conditions.

1. During the period of INTERNSHIP you will perform the roles of Software Trainee
2. Your INTERNSHIP will continue till the completion of the project and for a minimum of 6 Weeks to 9 Weeks.
3. Any training related coaching or training will be provided to you by the highly qualified technical team at INDIAN SERVERS.
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5. During the INTERNSHIP, you are requested to maintain the decorum of the COMPANY, as this will have an impact on your project completion certificate

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6. You will come under NDA (Non-Disclosure Agreement), which in its meaning shall mean but not limited to

a. You shall not disclose any information related to the projects, company Sensitive information, technical details, assets, products and anything of similar importance, to your friends, family members or any other known or unknown people.

b. All the material, whether movable or immovable, intellectual or physical, shall be carried only with in the INDIAN SERVERS office inside premises only to the extent to discuss it with technical team of the company. Other than this, any such material is strictly prohibited from being carried.

7. Any breach in the RULE No. 6 shall be considered as a legal punishable Offence and you shall be liable to produce in the court of LAW.

8. In case of any behavioural issues from the colleagues, it shall immediately Be brought to the notice of the higher official in the company.

9. Any behavioural issue from your side, if reported or observed, shall be considered seriously and an appropriate action will be taken, including Rustication of your internship with Indian Servers.

10. Indian Servers does not hold any responsibility for all your belongings during the entire internship period.

11. Completion letter will be issued only if you are active throughout the internship period by completing all assignments and project work given to you

I and TEAM INDIAN SERVERS welcome you all, to have a successful technical journey.

Your UID: **IndServ22a506**

With warm regards,

I agree to all terms and Conditions

Sai Satish

D. SaiSatish
CEO, Indian Servers

Amalodbhavi Nelaturi

PS: A signed copy of this document should be submitted in the office at the earliest.
This document can be verified for next 6 years of the date of issued subject to conditions

Exposys
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TO WHOM IT MAY CONCERN

This is to certify that **Ms. SUSHMA PRIYA THOTA** has completed internship programme on **"Data Science"** from 31.03.2022 to 30.04.2022.

She took keen interest in the work assigned and successfully completed it. During the period of internship we found her to be punctual, hardworking and inquisitive.

We wish her luck and success in all her future endeavours.

Y Vishnuvardhan

Chief Director

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Department of Computer Science and Engineering

EURTH -TECHTRONICS OUTCOMES
Department of Computer Science and Engineering

EURTH -TECHTRONICS OUTCOMES

Academic Year:17-18

S.No.	Outcomes	Remarks
1	Incident Reporting Device to Save Lives Using IOT	Paper Published at **ICCET-18**
2	Pick and Place Robot	Project Expo at **1. VR Siddhartha College of Engineering** **2. PVP Siddhartha College of Engineering**

CSE HOD

Head of The Department
Dept. of Computer Science and Engineering

INCIDENT REPORTING DEVICE TO SAVE LIVES USING IOT

[1]Kotapalli Sudhakar, [2]M. Sravyasri, [3]G.Sravya, [4]K. Kalyani [5]Ch. Priyanka
[1]Associate Professor of CSE, [2,3,4,5]IV B.Tech (CSE) Project Team,
Department of Computer Science & Engineering, PSCMR College of Engineering & Technology
Email: sudhamsetti@gmail.com

ABSTRACT: Technology is getting advanced day by day, we should utilise that in an advantageous way such that we should implement something useful in a practical way for our life. The society is in need to reach people, who are close enough to solve real problems such as accidents, incidents, unwanted situations due to many reasons are heading high and we are in red alert. In this context, we are putting an end point to the accidents/incidents in public. In the time of an accident the vehicles could send a message to the nearby ambulance drivers, police stations as a notification or as an alert in the mobile application we developed. Other general public gets it as a notification in their installed in the mobile application. For this, the people who have the mobile application should have their respective user accounts in it. In this scenario, we have designed a product that can stick to the vehicle and communicate with the people mentioned above, within the seconds of the accident. This device may hold the neighbour information and also gives the geographical location and obtain the information to communicate.

KEYWORDS:- Android, Arduino nano, GSM module, GPS, Vibration sensor etc.

1. INTRODUCTION: An android application for the developed hardware used for the IoT based incident reporting device chapter gives complete information about aim, objective and operating environment of the system.

PROJECT AIMS AND OBJECTIVES:

The project aims and objectives that will be achieved after the completion of this project discussed in subchapters.

The aims and objectives are as follows.

i. Connect the hardware device with the user's vehicle.
ii. The police men and ambulance drivers should create their respective accounts with the android application developed.
iii. The police and ambulance drivers will receive the information as alert message.
iv. These messages are sent from the administrator to the respected users' mobile phones into the "Incident Reporting" app.
v. The alert message is shown to the administrator using a separate app named as "Readsms".
vi. If a user chooses to handle a case then he must click on the option provided which will be visible to the other users as it was already taken by the user's.
vii. If the case is completed and the performer confirms the option, then the case record is deleted from the app.
viii. Thus, the ongoing actions and completed actions are differed and are shown.

2. BACKGROUND INFORMATION:

The Incident Reporting Device is an IoT based android application that is in handy for the people who were in an urge to get help while they have met with an accident. When the device connected to the vehicle alerts, it automatically sends the location to the users (police and ambulance drivers) who are needed in such situations. This reduces the loss of lives of people and also serves as a righteous usage of enhancing technology.

3. PROPOSED SYSTEM:

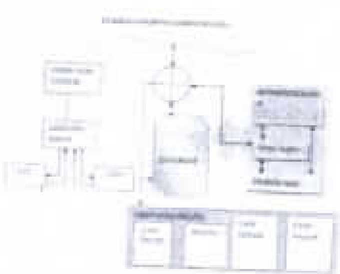
When the vibration sensor crosses the limits, then it gets activated and sends the information to GPS which traces outs the location of the accident through Arduinonano. This GPS sends the information to GSM which generates a message and sends it to the admin. The administrator who maintains the server accesses the database that stores the records of the previous and ongoing cases along with users' information, type of the user, status of the case, location of the accident etc. has a separate mobile app for him to check the new alert that only reads the incoming messages. This app notifies the admin and also updates the current record in the database. The admin and the database communicate with each other through the same network.

The users who are police and ambulance drivers have their own accounts and check their app continuously for any alerts. The updated records will be in a tabular format that stores the information about the accident location and the status of the report. When the user clicks on the location URL, it open google maps and shows the accident area. If a user chooses to handle the case, then others can see it as the case was handled by some other user along with their identity. Later, after the completion of the case, the user, who handled the case, has to update the record as the case was completed by choosing the button shown in the record table of the app. By this, the case will be removed from the table of the app and the users cannot see it.

4. ARCHITECTURE:

The following architecture illustrates the functionality of the Incident Reporting Device for multiple access domains through centralized authentication system.

Figure: 4.1 Block diagram



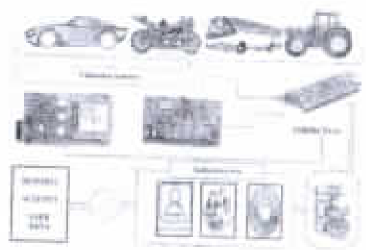
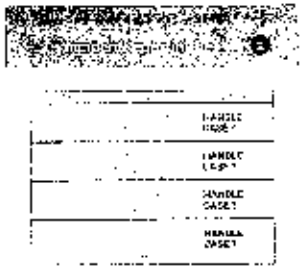


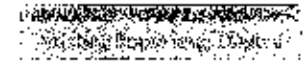
Figure: 4.2 Process of Incident reporting diagram

30



Police

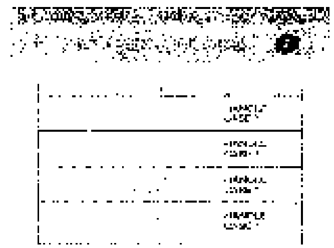
RESULTS:

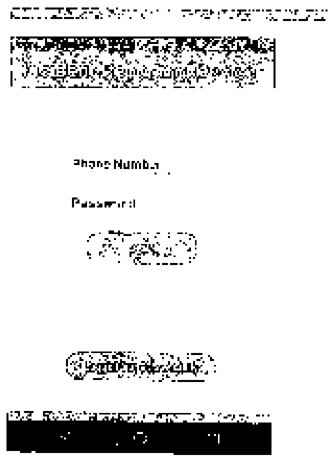


Police

Phone Number

Password





DATABASE RESULTS:

Actual Values:

Handle Case:

Over Case:

Delete Case:

CONCLUSION:

This paper "Incident Reporting Device" is applicable to enhance their development to distributed environment, cloud computing and Big Data. The Android Application Development environment allows using this application in a flexible manner.

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Department of Computer Science and Engineering

EURTH -TECHTRONICS OUTCOMES

Academic Year:18-19

S.No.	Outcomes	Remarks
1	Cloud Enabled Voice Based Automation Using IOT	Paper Published at **UR**
2	Job Notification Using RSS Feed and PHP	Project Expo at **PSCMRCET, Vijayawada**
3	Auto Slideshow of Birthday Galleries Using PHP	Project Expo at **PSCMRCET, Vijayawada**

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Head of The Department
Dept. of Computer Science and Engineering

Potti Sriramulu Chalavadi Mallikarjuna Rao
College of Engineering & Technology
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Cloud Enabled Voice Based Automation Using IoT

Dr.Shaik Akbar,Professor, *PSCMRCET, Vijayawada*
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Abstract-Data, a basic part of communication can be in many forms such as: audio, video, text, image, gif etc. This data is being transferred across many channels using wired or wireless communication from one point to another point or across multiple points. Data communication is the transfer of any form of data to local or remote destinations. The voice data can be transferred from one location to another location using various implementations/techniques. Using group of Integrated Circuits in a transmitter kit for serial transmission of the voice data to receiver. Also the use of wireless audio transmitter and receiver for voice transmission. This project proposes the use of convertors (TTS and STT) that store voice data in the cloud and transmit to destination. It also uses the file-path (voice input saved as a file) which is being executed at destination side to get voice output.

Keyword-*Internet of things, Google API, Recorder, Raspberry Pi3,HDMI to VGA converter,Speaker.*

I. INTRODUCTION:

Data transmission is very essential part in day-to-day communication. Internet of things (IOT) involves ease communication between one device and other device without any human interaction. This IOT is a network of objects that are connected to each other for data exchanging. The time taken to transfer data between any two points is less using IOT mechanism. The opacity between the devices in IOT is more and this provides very easy communication between remote devices from anywhere. Here, this project proposes the transfer of voice data from sender to receiver over internet from any remote location. The sender sends the voice input through a device(mobile) and this is being transferred to the device(Raspberry-pi) at receiver side over internet. This is how the data communication is established between the sender and receiver over internet from any remote location.

II. RELATED WORK

In the existing system the audio signal/voice data is transmitted over Zig-Bee protocol using moderate quality voice signal. This system can transmit and receive the audio signal / voice data to and from within 10 to 100 meters distance by using Zig-Bee technology. That is these signals are restricted to only Wireless Personal Area Network (WPAN). The bandwidth of Zig-Bee wireless technology is limited. So the transmission rate is less due to this limited bandwidth. The transmission of voice may not be accurate in case of noise. Some earlier methods used microcontrollers and Digital Signal Processors (DSP) for voice transmission over Zig-Bee which is very costly. The block diagrams of the system can be shown as below:

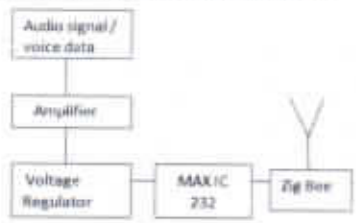

Figure2.1- Block Diagram of Transmitter

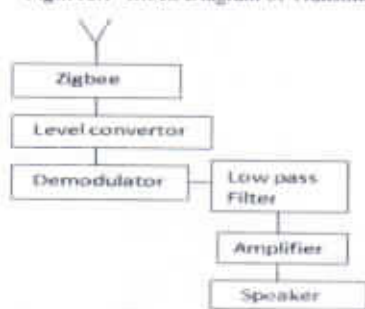

Figure 2.2 - Block Diagram of Receiver

III.PROJECT FRAME WORK

The proposed system explains the transfer of voice data from one location to another location or multiple selected locations at a time. The transmission of the voice data can be done either locally or globally (to any remote location) via Internet. To transfer this voice data from sender to required destinations, here we use Google API and Recorder.

A Working Principle

The working mechanism involved in implementing the voice transmission using Google API and Recorder from any remote location via using Internet is as follows:

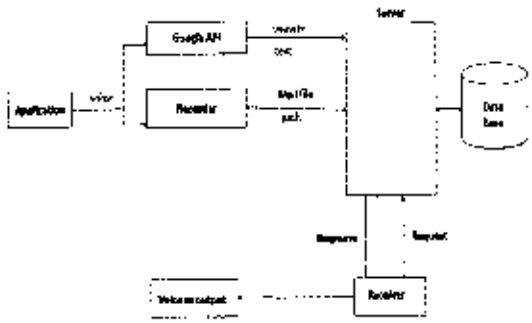

Figure 3.1 – Block Diagram

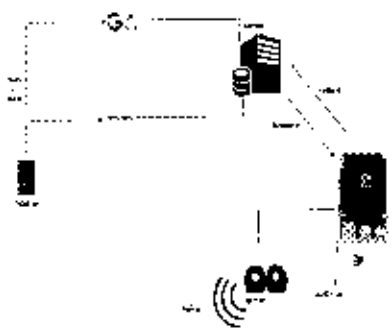

Figure 3.2 – Architecture diagram

B. Design Specification

Raspberry Pi 3 B+

Raspberry Pi is a credit card sized computer which is available at low-cost. It is a 64-bit quad core processor with 1.42 GHz. It has a RAM of 512 MB and a microSD card which acts as a hard drive. The Pi is portable to carry and it has a dual-band wireless LAN.

Speaker

Speaker is a standard output device. It is a device that converts the electrical audio signal to sound.

C. Google API

The Google API is capable of converting the voice to text (Speech-To-Text converter) very easily. The main advantage of using Google API here is for the following reasons:

- Google API supports nearly 80 different languages
- It returns text accurately as result.
- It is accurate even in noisy environment.
- It works with apps across any platform and device.

D. Working with GOOGLE API:

Firstly the sender opens the voice application. Later he login to the account. Then the sender sends the voice data as input from an application to the Google API. The sender has the flexibility to select the current date and time or he can also set the required date and time to send the message at receiver side at a particular time. Later the Google API converts this voice to text using (Speech-To-Text) converter. We establish Raspberry-Pi at receiver side. At receiver side the text data is being converted into voice by using Text-To-Speech (TTS) converter. Then the receiver gets the output as voice through speakers connected to Raspberry-Pi. In this way we send the voice data to receiver sideusing Google API. If any network issues are encountered at receiver side after the data is being sent by the sender, then the data is not lost. Instead it can be gained / accessed again when the network connection is on again.

E. Recorder

The sender opens the application and gives the voice data as input. Here also the sender has the flexibility to choose the current date or he can set the date and time accordingly as he needed. Here the input voice is being recorded completely by the sender. After the whole recording is completed the sender clicks stop recording option and clicks on send button. This recorded voice data is stored as an MP3 file. This MP3 file path is being stored in the database. At receiver side this audio-path is being run and the receiver gets the voice as output through the speaker. If any connection failures

occur at the receiver side while receiving the data. then the data is not lost here also. The data can be retrieved when the connection is enabled/ on again.

IV. RESULTS

Figure 4.1 – Google API output screen1

Figure 4.2 – Google API output screen2

Figure 4.3 – Google API output screen3

Figure 4.4 – Google API output screen4

Figure 4.5 – Google API output screen5

Figure 4.6 – Recorder output screen1

Figure 4.7 – Recorder output screen2

Figure 4.8 – Recorder output screen3

Figure 4.9 – Recorder output screen4

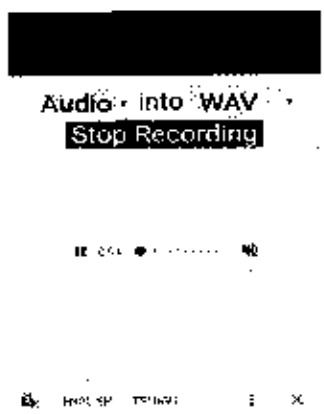

Figure 4.10 – Recorder output screen5

Figure 4.11 – Recorder output screen6

V.CONCLUSION

This project uses Google API and Recorder methods in order to transfer voice from one location to any another remote location. In this system there is no loss of the data because each and every voice data is being stored in database which is used to retrieve at receiver side when network failures occur. And also every voice data is saved in database for any future use of that particular recording. This project is very cost effective. The transmission rate is very high as the bandwidth is very high. Using this proposed system the sender can give voice input from anywhere to any remote location globally via internet.

VI. REFERENCES

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[2]. Khushboo Sahal, Ashwary Kulsresh, November 15 Volume 3 Issue 11, "Voice Data (Compressed) Transmission Over Zigbee Protocol with Moderate Quality Voice Signal", International Journal on Recent and Innovation Trends Computing and Communication (IJRITCC), ISSN: 2321-8169, PP: 6185-6189.

[3]. E. Touloupis A. Meliones "Implementation and evaluation of voice codec for Zig-Bee." 2011 IEEE Symposium of Computers and Communications . PP: 341-347, 2011

[4]. H.Y. Song, "Unslotted CSMA-CA for Voice Communications by performing with LR-WPAN". The Asian Pacific Conference on Communications ,2011

POTTI SRIRAMULU CHALAVADI MALLIKARJUNA RAO
COLLEGE OF ENGINEERING & TECHNOLOGY
Sponsored by: SKPVV Hindu High School Committee, Estd: 1906
Approved by: AICTE, NEW DELHI and Affiliated to JNTUK, Kakinada
Website: www.pscmr.ac.in, Contact Number: 91 - 866 - 2423442

Department of Computer Science and Engineering

JOB NOTIFICATIONS USING RSS FEED AND PHP

ABSTRACT

Today's challenging world, the passed out bachelor (B.Tech) students whose has searching the jobs might be facing difficulties to where the opportunities. This projects aims to fulfill the gap to search jobs. Using the technology of RSS(Really Simple Syndication) which is the xml based language which feeds the information's related to jobs like job title, role, skills required, experience, description, date of interview. RSS feed is like web service which hosted by popular domains sites like monster, Naukari, etc., We able to get RSS feed information from their domains filter the fields according to fresh B.Tech graduate student using PHP and host the web pages using myCpanel and display the web pages in web browser to monitor connected to Raspberry Pi3.Finally we implement Web pages with Job notifications.

REQUIREMENTS

Hardware:

- Raspberry Pi3

Software:

- PHP, HTML,CSS,XML,RSS

CIRCUIT DIAGRAM

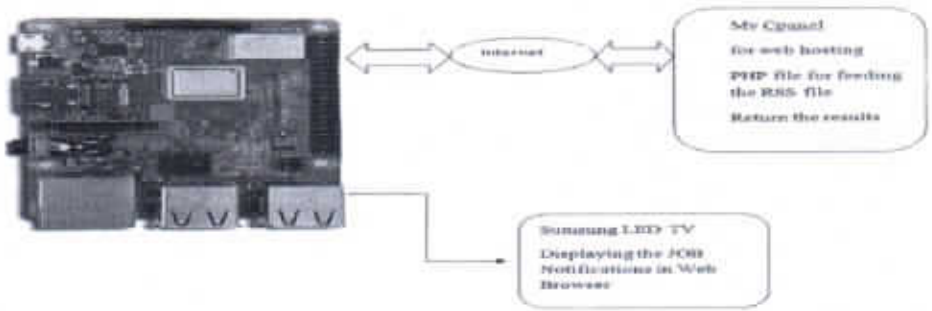
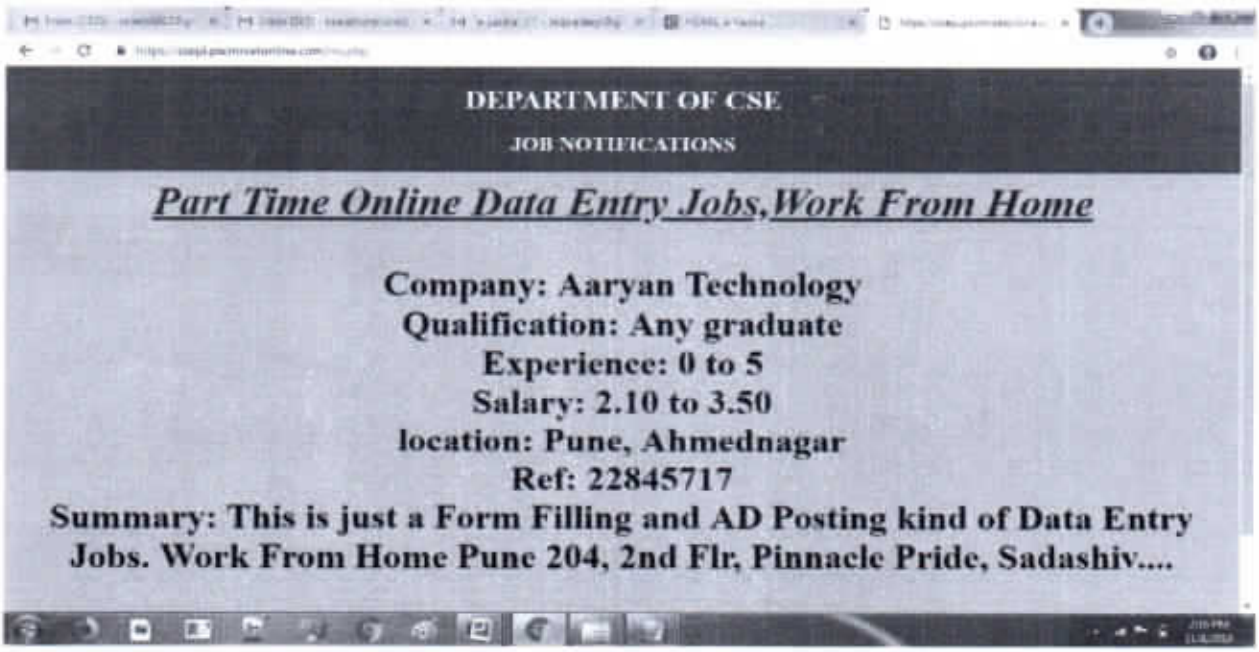


Figure 1: Flow Diagram for Job Notifications

Output Screen:



APPLICATIONS

- Useful to the students for passed out and final year graduate students.

TEAM MEMBERS

- Nagandla Leela Pavan Kumar(16KT1A0558)

NAME OF THE MENTOR

- B. Sarath Chandra Asst Professor

OUT COME:

- It shows job notifications to web page in digital notice board, directly from naukari.

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Kothapet, VIJAYAWADA-520 001.

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Website: www.pscmr.ac.in, Contact Number: 91 - 866 - 2423442

(3)

Department of Computer Science and Engineering

AUTO SLIDESHOW OF BIRTHAY GALLERIES USING PHP

ABSTRACT

We proposed to develop the automatic slide show of the birthday gallery of the students.Using the server side scripting PHP we can implement the two modules, one for birth date registration with uploading the image from client side browser and other for retrieving and display the images from server(myCpanel). We develop client-server application for birthday gallery.

REQUIREMENTS

Hardware:

- Raspberry Pi3

Software:

- PHP, HTML,CSS,MYSQL

CIRCUIT DIAGRAM

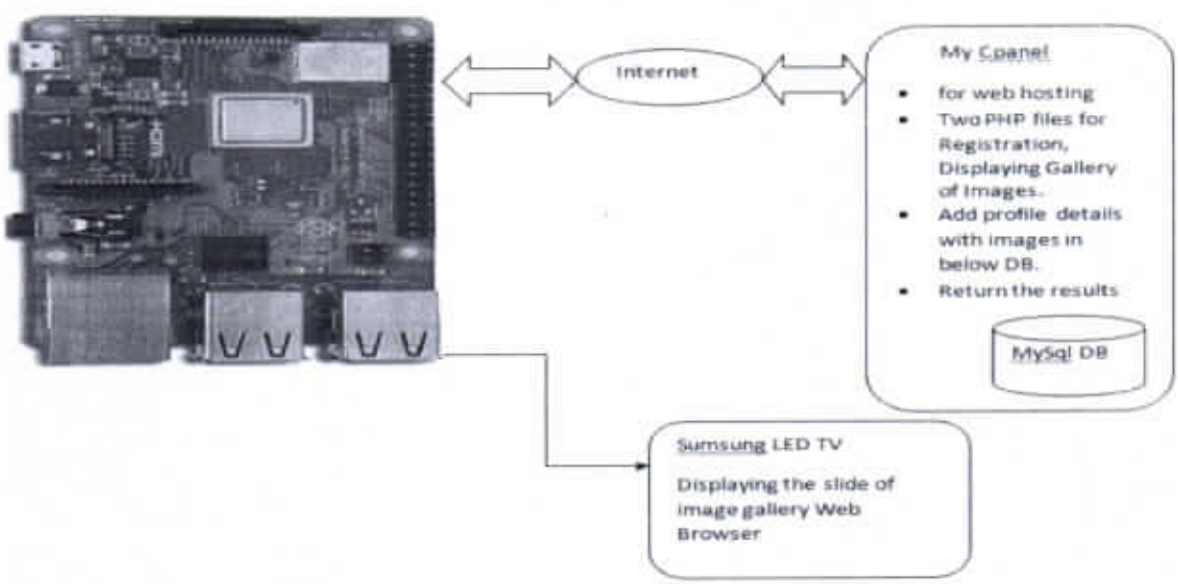

Figure 1: Working Flow for Auto Slide Show

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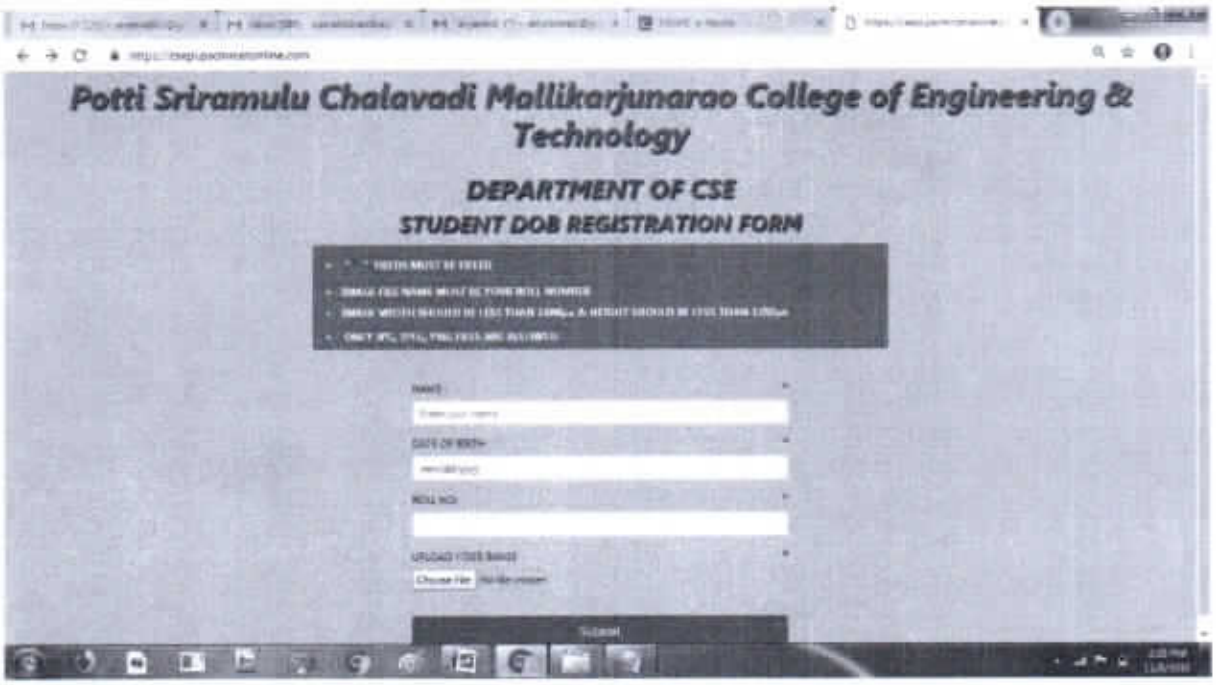
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.

Output Screen:



APPLICATIONS

- Useful to the birthday students and lets others can wish them.

TEAM MEMBERS

- Nagandla Leela Pavan Kumar(16KT1A0558)

NAME OF THE MENTOR

- B. Sarath Chandra Asst Prrofessor

OUT COME

- It displays birthday info in digital notice board.

Potti Sriramulu Chalavadi Mallikarjuna Rao
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.

e-Yantra Robotics Competition - 2017

- **Provides a platform for students to demonstrate their knowledge and programming skills in Embedded Systems and Robotics.**
- **Learn by doing! An opportunity for you to apply your knowledge to solve a real life problem with given hardware.**

How to participate:

- Register as team of four.
- Selection through online test.
- Selected teams are provided with further training/problem.
- Teams learn and implement solutions in a step-by-step manner through various Tasks.
- Based on performance in the Tasks, teams are chosen as finalists.
- Finalists compete for prizes at Finals at IIT Bombay in March 2018.
- Prizes include internships at e-Yantra lab, IIT Bombay.

Registration opens:1st August, 2017 onwards!

Register at: www.portal.e-yantra.org

Contact us at: helpdesk@e-yantra.org
Phone: +91 22 2576 4986

www.facebook.com/eyantra

www.twitter.com/eyantra_iitb

Registration open till 31st August, 2017

Team Profile

rtale-yantra.org/profile/teamProfile

Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology

P Jagadeeshwara Vara Prasad

jagadeeshwaravaraprasad@gmail.com

7095403811

P Lakshmi Sanju

This profile is complete

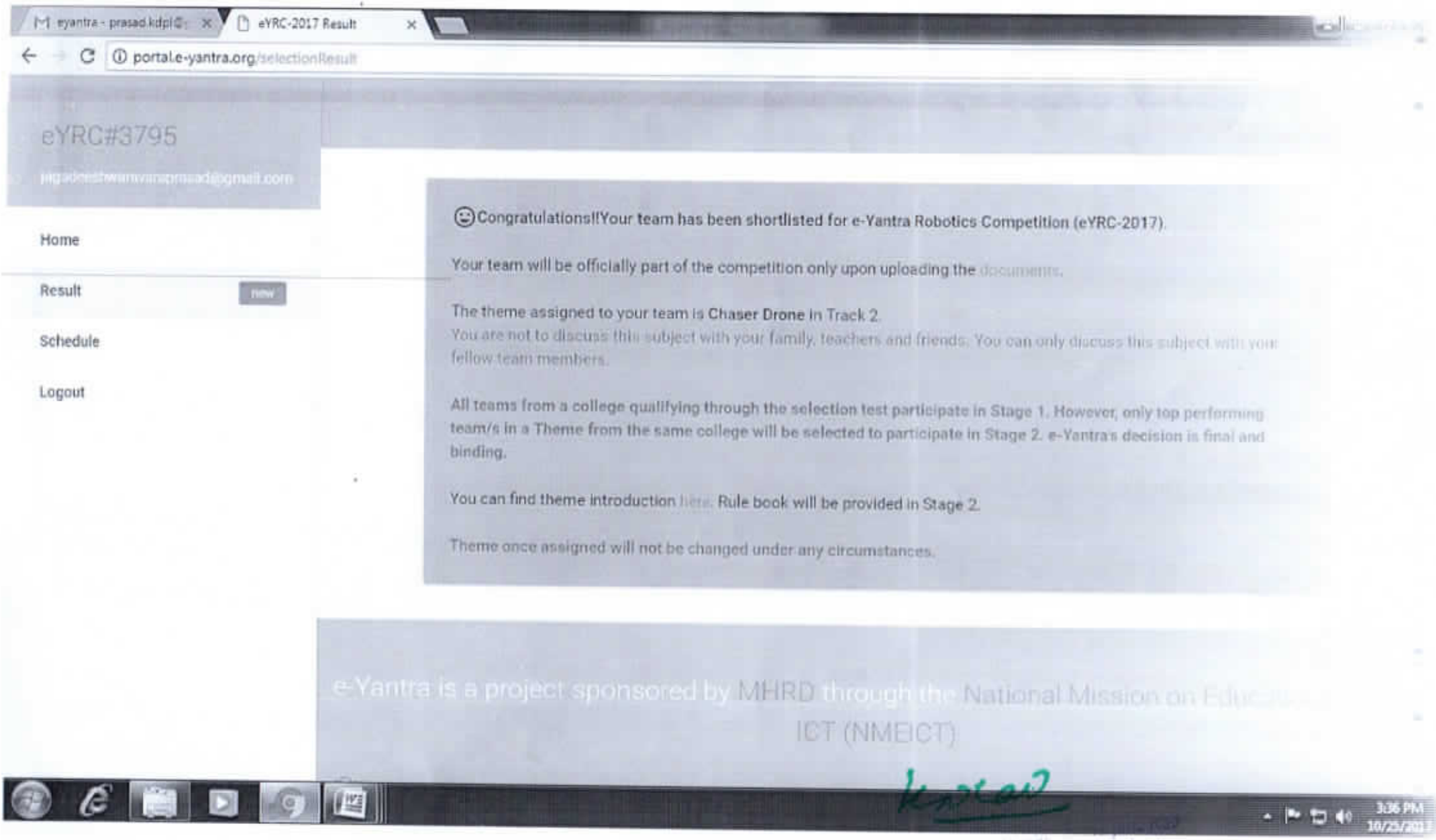
U Sri Teja

sritejauppuluri@gmail.com

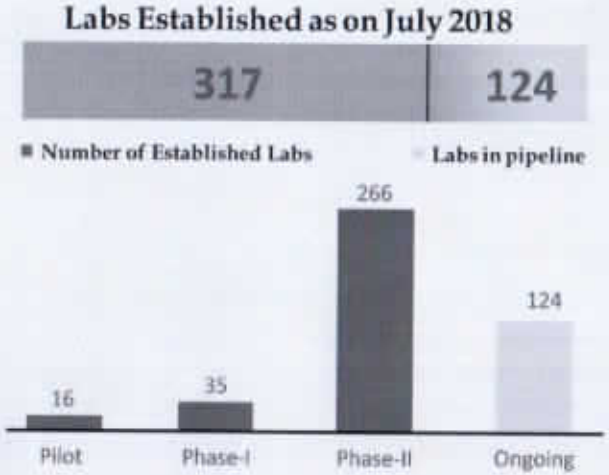
9154618210

M Likith

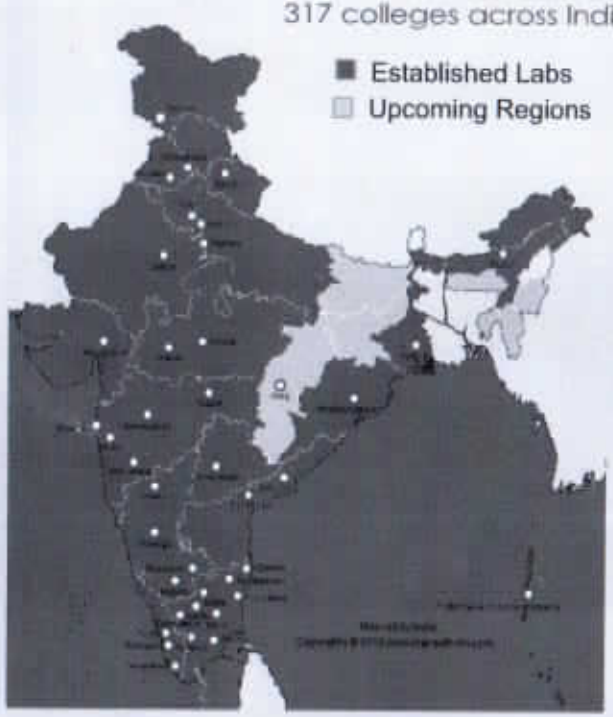
Potti Sriramulu Chalavadi Mallikarjuna Rao
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.



Growth of eLSI:



e-Yantra labs established in 317 colleges across India.



Interested in setting up a Robotics Lab under eLSI ?

Contact: support@e-yantra.org

e-Yantra Competitions:

For Students:

e-Yantra Robotics Competition (eYRC):

Engages students using Project Based Learning (PBL) to implement a solution to a real world problem. Robots, accessories, training material, and rulebook are given to teams selected for participation, free of cost. Prizes are exciting 6-week internships at IIT Bombay.

For Teachers:

Task Based Training (TBT):

Engages teachers through hands-on experiments in a step-by-step manner with exciting prizes and certificates.

For Students, Teachers and Colleges:

e-Yantra Ideas Competition (eYIC):

eYIC is the basis for e-Yantra to build a startup eco-system around a college e-Yantra lab. We solicit ideas from student-teacher teams from eLSI colleges as the basis for innovative projects and for sustained use of Robotics labs set up through eLSI.

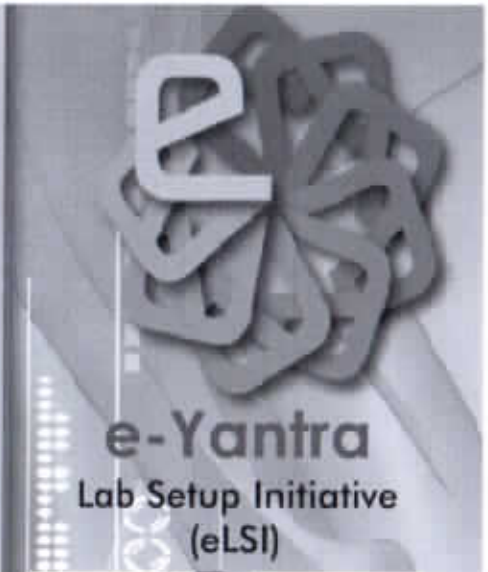
e-Yantra Team

Contact details:

Web-site: www.e-yantra.org
e-mail: support@e-yantra.org
Phone: 022-2576-4986; 022-2572-0184
Facebook: www.facebook.com/eyantra

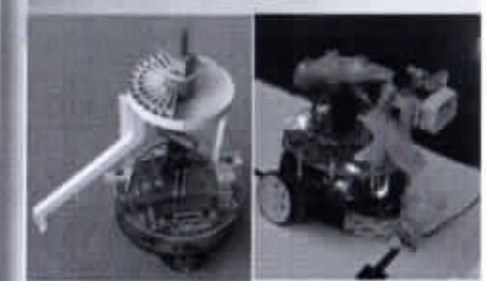
eyantra

Engineering a better tomorrow



e-Yantra

Lab Setup Initiative (eLSI)



A project sponsored by MHRD through National Mission on Education through ICT (NMEICT)

Department of Computer Science and Engineering
IIT Bombay

Two Day Workshop

e-Yantra Lab Setup Initiative (eLSI)

e-Yantra is a project hosted by IIT Bombay to spread education in Embedded systems and Robotics and is sponsored by Ministry of Human Resource Development (MHRD) through the National Mission on Education through ICT (NMEICT).

e-Yantra Lab Setup Initiative (eLSI) supports infrastructure creation at colleges by providing a platform for inducting teachers in Project Based Learning or "Learning by doing". We train teachers in theory and applications of Embedded systems and Robotics, in addition to providing guidance in setting up an Embedded Systems and Robotics lab at the college.

eLSI enables colleges to teach Robotics and Embedded Systems by:

- Training team of 4 teachers from a college in basics of Embedded Systems theory and Micro-controller programming through a on-site (at a local centre) 2-day workshop.
- Engaging teams through Task based Training (TBT) – where teachers are trained to implement experiments on a robot over a period of three/four months. Each college team is given a Robotic kit complete with tutorials and accessories and is taken step-by-step through hands-on training by the e-Yantra team.
- Providing support and advice to set up Robotics lab so that by the time the teachers are trained, the lab is ready at the college for the teachers to get their students involved through projects.

How does the college Benefit?

Benefits:

The main benefit of engaging with e-Yantra is to empower teachers and students and to create a culture of innovation and entrepreneurship in a college through e-Yantra initiatives. We not only help set up infrastructure and provide training but also through our considerable network identify resources in industry and alumni to help realize these goals in colleges hosting our labs.

More specific are the following outcomes:

- Better Final year projects in the area of Embedded Systems and Robotics.
- Access to a vast resource of open source projects and tutorials.
- Sustainability of the established lab through participation in the e-Yantra Ideas Competition (eYIC).
- A chance to setup an Agriculture IoT-testbed through the e-Yantra Farm Setup Initiative (eFSI).
- Better prospects for a college to gain visibility and attract local industries for internships and placements.

e-Yantra Ideas Competition

Online Lab Inauguration Ceremony

- Integration of hands-on experiments with regular theory sessions through teacher manuals shared via a resource portal.
- The established lab along with its sustainable ecosystem helps a college during accreditation.

How does a college participate?

It is in the interest of the college to invest in creating infrastructure – a Robotics lab where students have an opportunity to explore interdisciplinary skills and to prepare them for either industry or startups.

- A college needs to commit the following to participate in this initiative:

1. Funds to equip a basic Robotics lab (in addition to space and other infrastructure for a lab)
2. A team of 4 teachers to be trained by e-Yantra.

e-Yantra Symposium (eYS) at IIT Bombay

Gmail eyantra

822

Gentle Reminder: e-Yantra Symposium (eYS-2016)

Inbox ×

support@e-yantra.org via amazonses.com
to me, admin

Respected Sir/Madam,

This is to remind you that the last date to register for the third e-Yantr **March, 2016.**

You may find highlights of this year's Symposium attached with this mail.

In case you have not registered for the Symposium please click o Symposium-2016 Registration and register.

Kindly ignore this mail if you have already registered.

Anu

hema

Sanc

Sunil

Potti Sri... ...juna Rao
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.

Gmail pradeep kumar <satpradeep@gmail.com>

e-Yantra Symposium (eYS-2016): Registered Successfully!

1 message

e-Yantra, IIT-B <admin@e-yantra.org> Thu, Mar 17, 2016 at 4:47 PM
To: satpradeep@gmail.com
Cc: admin@e-yantra.org

Respected Sir/Madam,

Greetings from e-Yantra!

You are successfully registered for the Third e-Yantra Symposium (eYS-2016) which is scheduled on 11th and 12th April, 2016.

e-Yantra has made provision for paid accommodation and it will be assigned on **First Come First Served** basis.

Accommodation will be available **on twin sharing basis. Teachers are requested to carry their college id.**

The tariff will be Rs. 1175 per person per day.

So for one person:

- one day (1) stay the tariff will be Rs. 1175
- for two day (2) stay the tariff will be Rs. 2350
- for three day (3) stay the tariff will be Rs. 3525

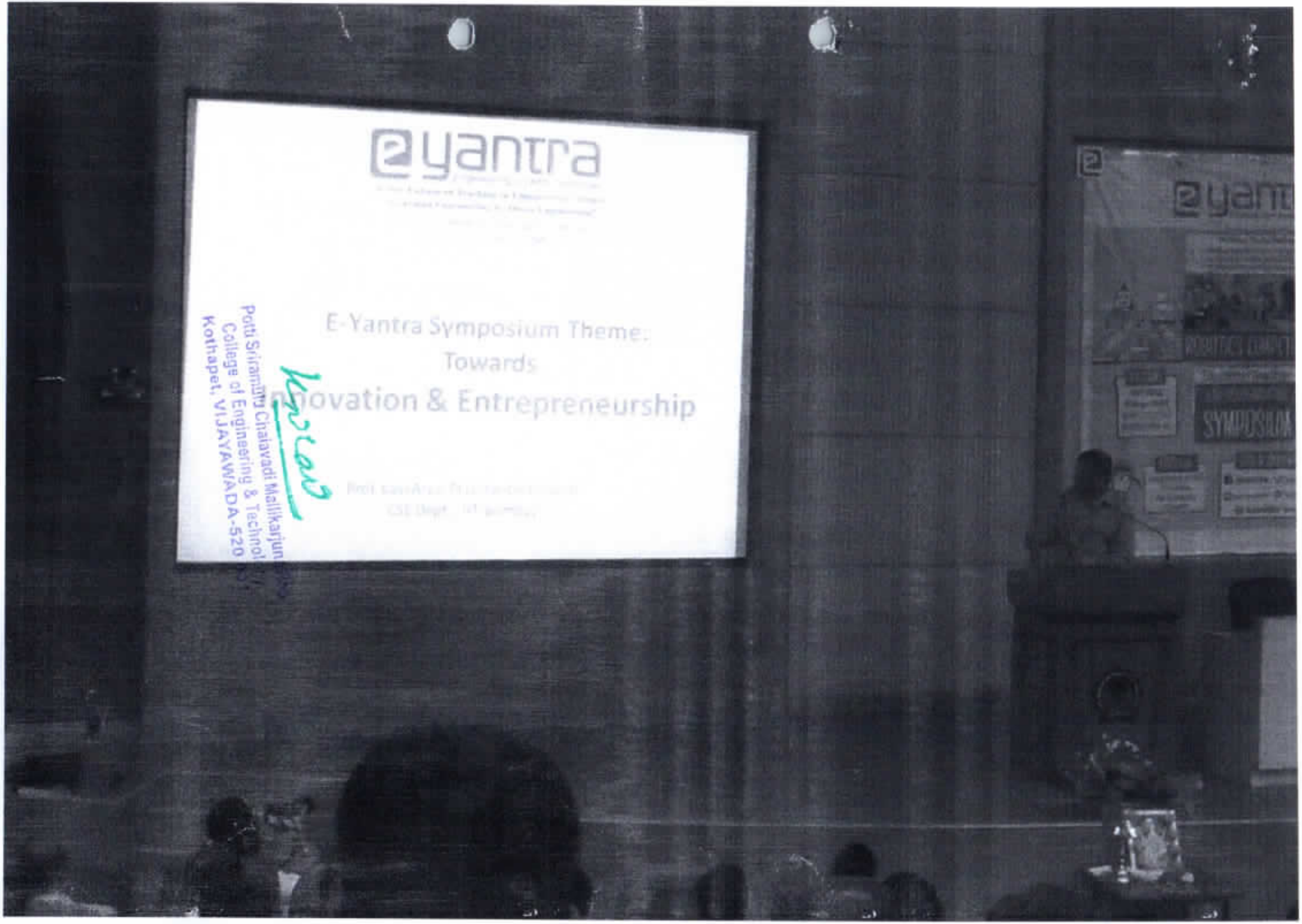
The amount is payable by Demand Draft in favour of "Registrar IIT Bombay" at the time of registration on April 11, 2016.

We will send you a link to register your accommodation request soon.

-Regards
e-Yantra Team
IIT Bombay.

e-Yantra is a project sponsored by MHRD through the National Mission on Education through ICT (NMEICT)

IIT Bombay
of Engineering & Technology
VIJAYAWADA-520 007.


eyantra
E-Yantra Symposium Theme:
Towards
Innovation & Entrepreneurship
SYMPOSIUM

Chaser Drone (CD)

Indian farmers are completely dependent on their crops for income and daily sustenance. However, wild animals such as elephants, wild boars, sheep etc. frequently walk over the farms and destroy crops. The recently announced Prime Minister Fasal Bima Yojana (PMFBY) acts as insurance to farmers in an event their crops are damaged due to floods, earthquakes and other similar non-preventable risks. However, crop damage due to wildlife is exempted from the insurance scheme and farmer groups have demanded that the PMFBY cover this damage. Data from the Ministry of Environment shows that in 2014-15, Rs. 34.5 crore was incured as crop damage caused by elephants. Regardless, the Ministry of Agriculture is taking no action in considering this problem faced by farmers. If solved, the farmers can maximize their income from the produce sold.

Inspired by our country's growing use of technology in agriculture, in this edition of e-Yantra Robotics Competition (eYRC-2017), we present the theme "Chaser Drone" where we use a drone to track wildlife roaming on farms and "catch" them. Through properly divided "Tasks" new concepts in visual control, drone flight dynamics, tracking an object using vision and controlling a robot using Robot Operating System (ROS) are emphasized.

A robot and a drone are given. The robot is the Runner representing an intruding animal and the drone is the Catcher. To avoid more damage to the crops the Catcher is a drone and not another ground based robot. The Runner negotiates the arena, representing a farm, following a random path given. The Catcher flies above the arena and 'catches' the Runner by landing on it. Both the Catcher and Runner are localized by markers and an overhead camera is used to track them. A PC/Laptop running the Robot Operating System (ROS) is used to track the robots and issue motion commands for the Catcher.

While moving in the farm, the Runner can hide in small caves while the Catcher tries to locate it within the field. The challenge is to land the Catcher on the Runner in the shortest time possible.

The team that performs the task fastest in accordance with the rules will be declared the WINNER.

All the Best!!!

POTTI SRIRAMULU CHALAVADI MALLIKARJUNA RAO
COLLEGE OF ENGINEERING & TECHNOLOGY

eYRC-2017: Track 2

No Objection Certificate (NOC) format

(To be signed by principal of the college for each team participating from the college – team members must be students of the college)

This is to state that:

1. **Mr. Pallem Jagadeeshwara Vara Prasad, II-Year, CSE-Branch**

2. **Ms.Ponnapalli Lakshmi Saroja, II-Year, CSE-Branch**

3. **Mr. Maddi Likith, II-Year, CSE-Branch**

4. **Ms.Upputuri Sri Teja, II-Year, CSE-Branch**

are bonafide students of **Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology**

Our college has no objection in the participation of the team consisting of the above-mentioned students, having team leader **PALLEM JAGADEESHWARA VARA PRASAD** in the e-Yantra Robotics Competition (eYRC-2017).

We understand that,

- In eYRC-2017, the themes are categorized under three (3) different Tracks namely Track 1, Track 2 and Track 3.
- The above team from my college has been selected to participate in Track 2.
- Track 2 will be conducted in two Stages: Stage 1 and Stage 2.
- Only teams that qualify in Stage 1 based on performance will continue in the competition and participate in Stage 2.
- If multiple teams qualify in Stage 1 in the **same theme** in Track 2 from our college, ONLY the best performing team/s from that theme in Stage 1 from our college will be selected for participation in Stage 2.
- All the selected teams in Track 2 will be given robotic kits along with other accessories to build/assemble a bot.
- After such team/s complete all the tasks in the competition or participate in the finals of the competition (whichever be the case) our college will collect the built robots and accessories.
- e-Yantra reserves the right to ask the team/s to return the robotic kits and accessories, if performance of the team/s is not found satisfactory. e-Yantra's decision is final and binding.

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College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.

POTTI SRIRAMULU CHALAVADI MALLIKHARJUNA RAO
COLLEGE OF ENGINEERING & TECHNOLOGY

- Our college shall NOT interfere in the conduct of the competition by helping the team in anyway, during the course of the competition and e-Yantra holds complete discretion in disqualifying teams if any foul play is suspected.

The college will provide ONLY the following support for the selected team/s participating in the e-Yantra Robotics Competition (eYRC-2017) conducted by e-Yantra project of IIT Bombay:

1. Allocate working space to the student team along with appropriate equipment such as computer and appropriate modes of communication, as requested by the team leader PALLEM JAGADEESHWARA VARA PRASAD
2. Provide the student team with a safe place such as a locker or a cupboard with a lock and key where they can store the material.
3. In case the team is unable to complete the competition, the college undertakes the responsibility to return the Robotic kit in working condition to e-Yantra Project.(Note that the team has to complete the competition by submitting all the tasks and the final video demonstration of the working prototype within the stipulated deadlines.)*
4. The college will grant leave to the student team to travel to IIT Bombay to participate in the finals, if selected.

Signed

Principal : **Dr. K. Nageswara Rao**

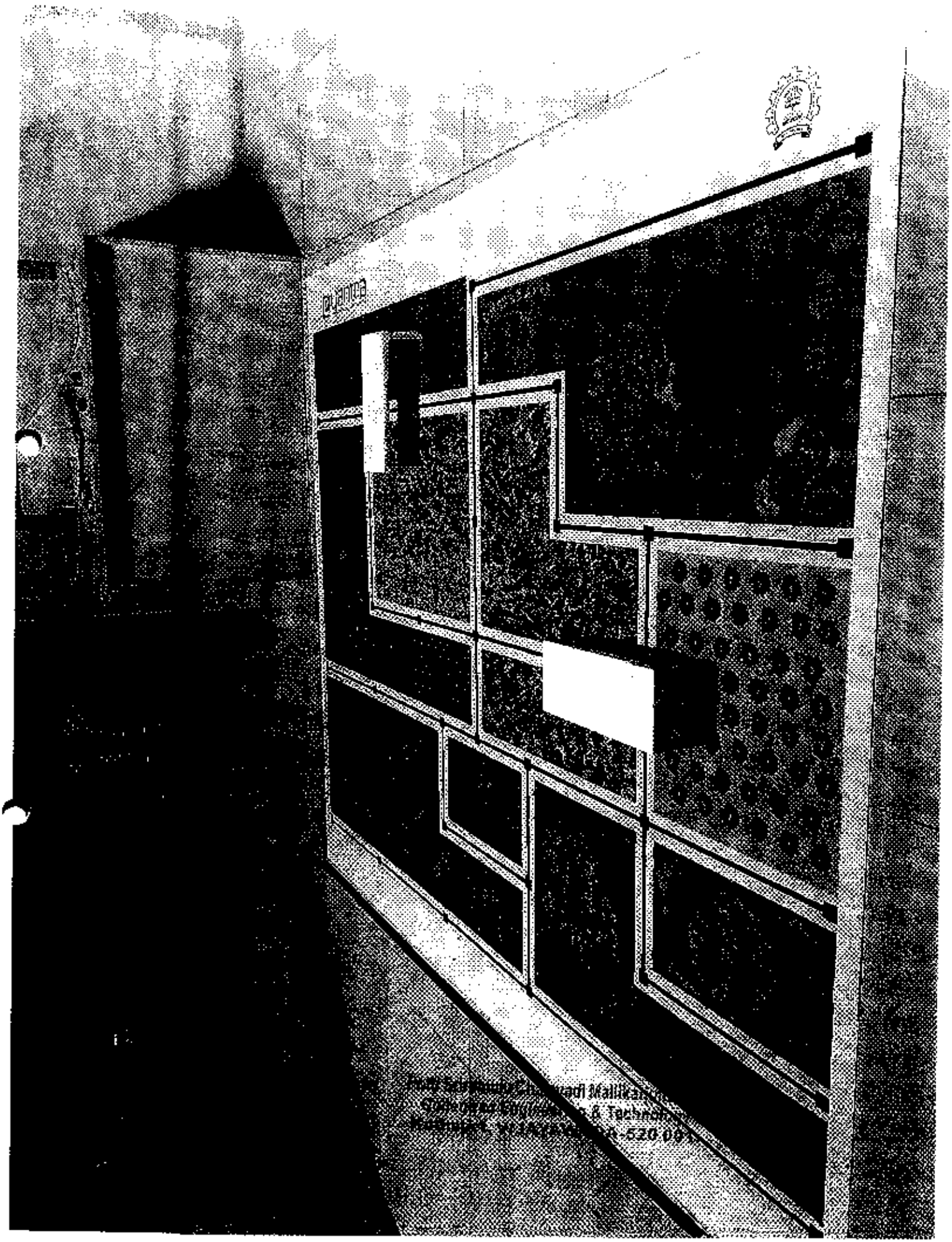
College Name : **Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology**

Date : 25-10-2017

Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology Kothapet, VIJAYAWADA-520 001.

Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology Kothapet, VIJAYAWADA-520 001.

* e-Yantra will communicate the procedure for returning the robotic kits at the appropriate time.



eYRC-2018 Launch Announcement

1 message

e-Yantra IITB <support@e-yantra.org>
To: prasad.gunde@gmail.com

Sun, Aug 12, 2018 at 3:23 PM

Dear V.S.R.K Prasad G,
Greetings from e-Yantra !!!

We are happy to announce the launch of the e-Yantra Robotics Competition (eYRC-2018).

About Competition:
Currently, in the seventh edition, eYRC-2018 introduces three Tracks – all Tracks are conducted in parallel and Finals for all Tracks are planned to be held at IIT Bombay in March 2019. This year also, we have exciting NEW THEMES to make students learn.

Kindly inform your students to Register!!! Don't Wait till the Last Minute to avoid any hassle.

The Last Date to Register is August 31, midnight.

The winners of this competition are eligible for a summer internship at IITB through the e-Yantra Summer Internship Program (eYSIP).

Visit http://portal.e-yantra.org to find more about the registration, eligibility and our terms and conditions.

In case your college has not received eYRC-2018 poster, please download it from the link:http://e-yantra.org/img/eYRC-2018_Poster.pdf to display on the notice board of the different departments of your college.

Please circulate this e-mail to students from different departments of your college.

With best regards,
e-Yantra Team

e-Yantra is a project sponsored by MHRD through the National Mission on Education through ICT (NMEICT)

Potti Sriramulu Chalavadi Mallikarjuna Rao
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001.

e-Yantra Robotics Competition

Engineering a Better Tomorrow

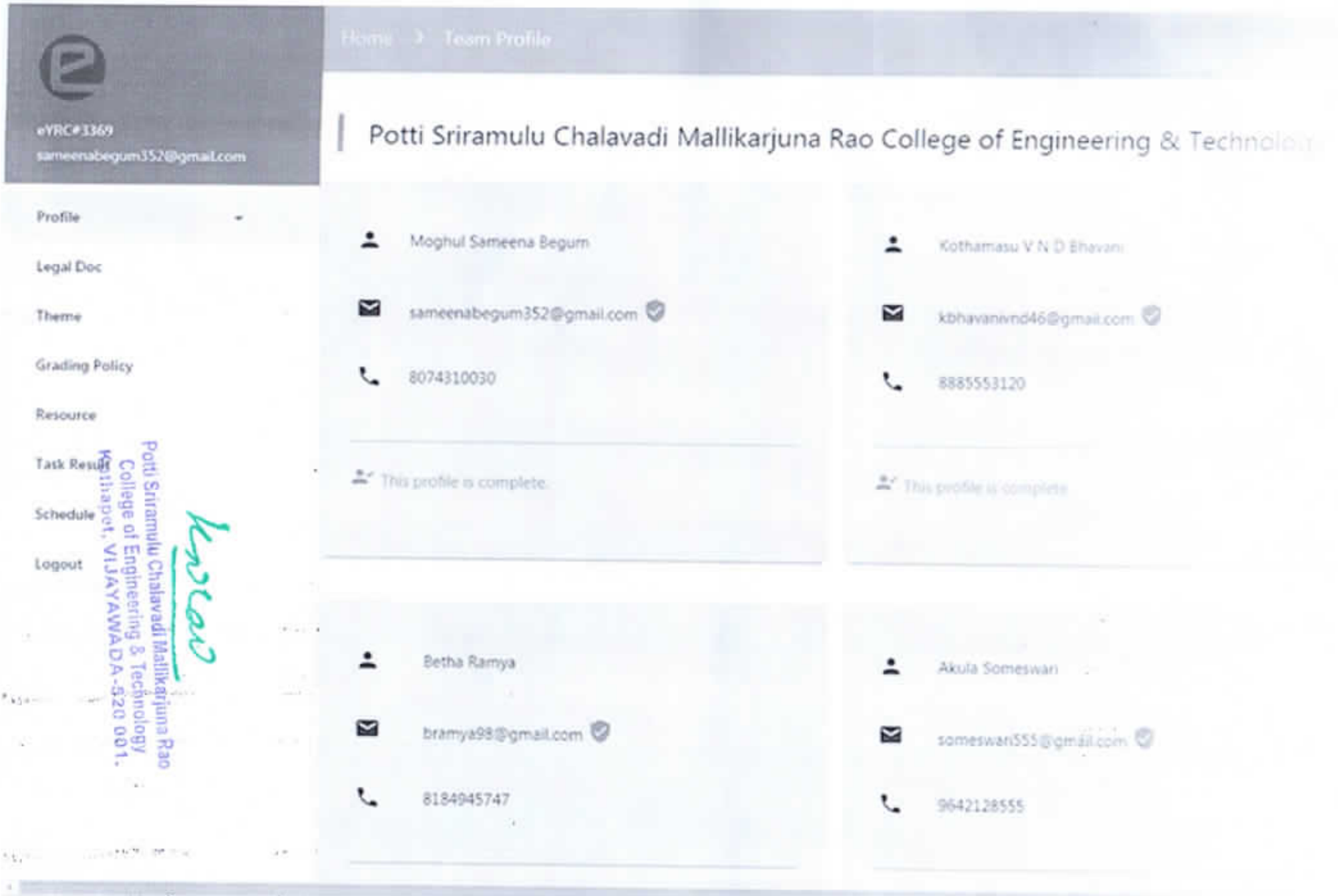
Provides robotic kits and the training to compete.

Learn while you compete and compete while you learn.

- **Provides a platform for students to demonstrate their knowledge and programming skills in Embedded Systems and Robotics.**
- **Learn by doing! An opportunity for you to apply your knowledge to solve a real life problem with given hardware.**

How to participate:

- Register as team of four.
- Selection through online test.
- Selected teams are provided with further training/problem.
- Teams learn and implement solutions in a step-by-step manner through various Tasks.
- Based on performance in the Tasks, teams are chosen as finalists.
- Finalists compete for prizes at Finals at IIT Bombay in March 2019


eYRC#3369
sameenabegum352@gmail.com
Home > Team Profile
Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering & Technology
Profile
Legal Doc
Theme
Grading Policy
Resource
Task Results
Schedule
Logout
Moghul Sameena Begum
sameenabegum352@gmail.com
8074310030
This profile is complete.
Kothamasu V N D Bhavani
kbhavanivnd46@gmail.com
8885553120
This profile is complete.
Betha Ramya
bramya98@gmail.com
8184945747
Akula Someswari
someswari555@gmail.com
9642128555
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ISO 9001 : 2015

eYRC-2018: Track 2
No Objection Certificate (NOC) format

(To be signed by principal of the college for each team participating from the college – team members must be students of the college)

This is to state that

1. Ms. **MOGHUL SAMEENA BEGUM**	**III B.TECH**	**COMPUTER SCIENCE AND ENGINEERING**
2. Ms. **K V N D BHAVANI**	**III B.TECH**	**COMPUTER SCIENCE AND ENGINEERING**
3. Ms. **AKULA SOMESWARI**	**III B.TECH**	**COMPUTER SCIENCE AND ENGINEERING**
4. Ms. **BETHA RAMYA**	**III B.TECH**	**COMPUTER SCIENCE AND ENGINEERING**

are bonafide students of **POTTI SRIRAMULU CHALAVADI MALLIKARJUNA RAO COLLEGE OF ENGINEERING AND TECHNOLOGY.**

Our college has no objection in the participation of the team consisting of the above-mentioned students, having team leader **MOGHUL SAMEENA BEGUM** in the e-Yantra Robotics Competition (eYRC-2018).

We understand that,

- In eYRC-2018, the themes are categorized under three (3) different Tracks namely Track 1, Track 2 and Track 3.
- The above team from my college has been selected to participate in Track 2.
- Track 2 will be conducted in two Stages: Stage 1 and Stage 2.
- Only teams that qualify in Stage 1 based on performance will continue in the competition and participate in Stage 2.
- If multiple teams qualify in Stage 1 in the **same theme** in Track 2 from our college, ONLY the best performing team/s from that theme in Stage 1 from our college will be selected for participation in Stage 2.
- All the selected teams in Track 2 will be given robotic kits along with other accessories to build/assemble a bot/mechanism.

D.No. 7-3-6/1, Raghava Reddy Street, Kothapet, VIJAYAWADA - 520 001. A.P.
Voice : 0866 - 6612111, 6613111, 0866-2423442, Fax : 0866 - 2423443, E-mail : principal@pscmr.ac.in, www.pscmr.ac.in

- After such team/s complete all the tasks in the competition or participate in the finals of the competition (whichever be the case) the team/s shall return to e-Yantra, IIT Bombay, the Robotic kits along with all the accessories given to the student team, to participate in the competition. This shall be done by shipping the same to e-Yantra Project, IIT Bombay.
- Our college shall NOT interfere in the conduct of the competition by helping the team in anyway, during the course of the competition and e-Yantra holds complete discretion in disqualifying teams if any **foul play** is suspected.

The college will provide ONLY the following support for the selected team/s participating in the e-Yantra Robotics Competition (eYRC-2018) conducted by e-Yantra project of IIT Bombay:

1. Allocate working space to the student team along with appropriate equipment such as computer and appropriate modes of communication, as requested by the team leader **MOGHUL SAMEENA BEGUM.**
2. Provide the student team with a safe place such as a locker or a cupboard with a lock and key where they can store the material.
3. In case the team is unable to complete the competition, the college undertakes the responsibility to return the Robotic kit in working condition to e-Yantra Project.(Note that the team has to complete the competition by submitting all the tasks and the final video demonstration of the working prototype within the stipulated deadlines.)*
4. The college will grant leave to the student team to travel to IIT Bombay to participate in the finals, **if** selected.

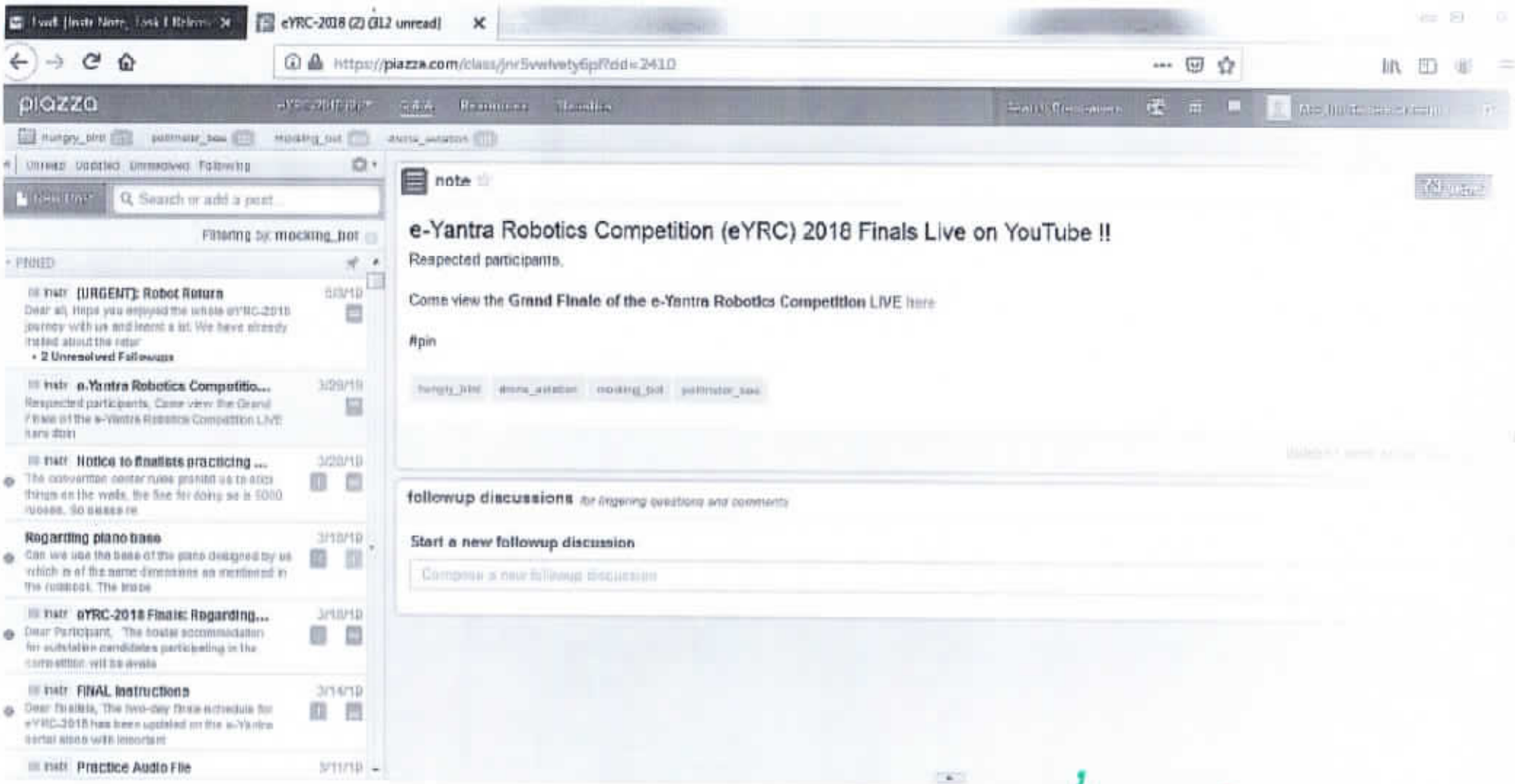
College Stamp

Potti Sriramulu Chalavadi Mallikharjuna Rao
College of Engineering & Technology
Kothapet, VIJAYAWADA-520 001

Signed:

Dr. K. NAGESWARA RAO
POTTI SRIRAMULU CHALAVADI MALLIKARJUNA RAO
COLLEGE OF ENGINEERING AND TECHNOLOGY
23-OCT-2018

* e-Yantra will communicate the procedure for returning the robotic kits at the appropriate time.



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Department of Computer Science and Engineering
e-YANTRA OUTCOMES
Academic Year:2018-19

S.No.	Outcome	Remarks
1	Drone Deliver Models (Medicine)	Paper Published at **JASC**
2	Attendance Monitoring System with Face Recognition	Paper Published at **IJRAR**
3	Character Recognition in Images using PYTESSERACT	Paper Published at **UR**
4	Getting to Operating System using Finger Gesture	Paper Published at **IJSIET**
5	Voice Controlled Robot	Project Expo at **Gora Science State Level Competition-2018-19**
6	Micro Radar Controller	Project Expo at **Gora Science State Level Competition-2018-19**
7	Soil Moisture Detecting System	Project Expo at **Gora Science State Level Competition-2018-19**
8	Object Detection Robot Using Open Computer Vision (CV)	Presented as paper at conference
9	Obstacle & Depth Avoiding Robot	Project Expo at **Gora Science State Level Competition-2019**

CSE HOD

Head of The Department
Dept. of Computer Science and Engineering

Drone Delivery Models (Medicine)

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18-19

Abstract

As the mobile phone allowed the developing countries in the delivering of things, drone has the same potential as the traditional transportation have. There are some roads by which it is a very difficult task to provide delivery of blood, medicine or other things. This paper reviews the current situation of innovative drone delivery particularly on Medication. From leading companies we had studied the different strategies of this Drone technology.

There are two new models we had discussed in this paper. The first one is the design of a drone Medicine delivery efficiently associated with the Time and economical drone medicine Delivery to save lives.

1. Introduction

The very new emerging technology mainly in transportation is Drone. The drone has the Potential to overcome the problem statement. Commonly Drones are known as Unmanned Aerial Vehicles (UAVs). Alternative terms include Remotely Piloted Aircraft (RPA), Remotely Piloted Vehicle (RPV) and Remotely Operated Aircraft(ROA). Some new innovative things had included in drone specific software, hardware and networks. For example: In order to have efficient flight of the Drone it should enable the light composite materials and global positioning systems (GPS). Furthermore, lithium batteries are also improving rapidly.So drones can fly further on a charge. Drone software can use tablet apps or mobile phone tracking and navigation. The drone operating system will monitor the weather data from all the ground stations and manages the network and it optimizes its route according to the data. This route should avoid bad weather conditions and other risk factors. Also, with an webcam it can enable communication with a control center. Although we have different definitions for drones because of its different characteristics, in generally the definition of drone is, it is a device which is capable of sustained flight, without having any human on board, and are under control to perform some useful functions.

Some of the useful drone functionalities include delivery of small items(Medicines) that are in urgent need in remote locations with difficult access. In time delivery of urgent medicines, blood and vaccines. However, there are some locations which have very bad roads due to the severe weather condition and heavy traffic jam on the road the normal transportation of the items may delay greatly. Since a drone can fly it can overcome all the problems. Some innovative organizations have started the use of drones for healthcare delivery. In this section , we provide an example:

To our knowledge, this paper is the first academic paper published on drone delivery models for medicine. While the limited academic literature published a paper on the model of drone delivery which had focused on the parcel delivery, this paper had provided two new models for drone delivery in a medical context. A logistics network is designed to deliver the healthcare items using a tandem strategy which involves land-based transportation and final delivery by drone. Both models mainly focused on the location of warehouse with supplies and the drone nests to complete final delivery.

The main objective of our first model is to minimize the total weighted time for delivery: the second model seeks to minimize the maximum weighted time to any delivery point thereby it ensures the more equitable service to outlying regions. For a review of location decisions see.

2. Background on drone applications

Many drone applications involve surveillance
using an on board camera. However, drones are capable of carrying small devices other than cameras and they are also capable of delivering small loads. We can see the extensive use of drones in the military in combat and for humanitarian aid. Apart from military usage, drone have the applications in different industries which includes agriculture surveillance and crop spraying, monitoring wildlife for conservation, shark surveillance at beaches, monitoring fires, monitoring riots and international borders by police and governments, scientific research and exploration, sports and entertainment event coverage, other media coverage, emergency services and disaster response .

Arguably, humanitarian drone applications have many uses since human lives are at stake. For example, in Nepal after the 2015 earthquake, drones helped rescuers to locate survivors. In contrast to humanitarian drone applications, drones have been used for crimes, such as firing weapons, delivering contraband to prison inmates, hacking and terrorism.

Also drones have been criticized for inadequate regulation, safety issues which include security and privacy abuse. Celebrities and others are concerned that drones will spy on them.
Regulatory bodies, such as the Federal Aviation Administration (FAA), usually ban commercial drones because they can collide with airline air space. Nevertheless, there have been reports of hundreds of collision occurred due to noncommercial drones.

Since December 2015, the weight of drone which is in between .55 and 55 pounds must have to be registered with the FAA and marked with the registration number so that owners can be identified if there is an accident occurred or criminal use of the drone . Owners have to follow FAA restrictions, which allows drone to fly during daylight hours, within line of sight, not over people etc.

In the US, the usage of commercial drone is illegal without a Section 333 exemption. FAA exemptions have been granted for some surveillance applications, for example BP pipelines, apart from delivery. This has been frustrating to Amazon and other companies which are planning for drone delivery. Flirtey has had FAA approval for delivering medical supplies in rural Virginia with drones. However, the approval was applicable only for a weekend. In contrast, countries with urgent and critical healthcare needs, such as Rwanda, are more likely to quickly overcome regulatory hurdles.

3. Drone applications in healthcare

Drone applications in healthcare which includes the delivery of medicine, blood samples, defibrillators and vaccines.
For example, autonomous drones, such as those implemented by Matternet, uses GPS and other sensors to navigate between automated ground stations in order to deliver medicines in remote locations which don't have adequate roads. Matternet has delivered medicines in Haiti following the 2010 earthquake and also in the Dominican Republic, as well as in New Guinea and also in

Switzerland. This company works with UNICEF and Doctors without Borders. Matternet's drones have the capacity to carry one to two kilograms (2.2 to 4.4 pounds) and can transport items about 10 km, traveling up to 40 km per hour, taking about 18 minutes including lift off and landing. A smartphone app can enable sender to choose the possible destinations from a list, then the drone will automatically generates a route based on the terrain, weather, population density and airspace. This route won't consist of airports, schools and public squares, as well as hills and buildings. In the case of emergency a parachute will deploy.

Table 1. Comparison of drone healthcare delivery

Drone Company	Healthcare items	Delivery location
Matternet	Blood, Medicines	Haiti, Dominician Republic, Papua New Guinea, Switzerland
DHL Parcel	Blood, Medicines	Germany
Zipline	Vaccines, blood	Rwanda
Flirtey	Medicines	Virginia, Nevad
Delft University	Defibrillators	Netherlands

In Germany, DHL Parcel had completed its research in 3 generations of medical drone delivery known as 3298Parcelcopter . The first generation travelled 1km to deliver blood samples across the River Rhine at Bonn. The second generation tested drone delivery of medicines and other urgently needed material for a duration of three months in 2014 to Juist, one of Germany's remote North Sea Islands. The Parcelcopter had traveled 12 km across open sea. From January to March 2016, DHL's third generation Parcelcopter tested the delivery of over 130 parcels of urgently needed medicines and sporting goods between automated Skyports in two Bavarian Alpine villages. Drone delivery took 8 minutes compared to a 30 minute road trip in winter. The time difference is very significant in a medical emergency.

Both UPS and Zipline are working on a drone network to deliver vaccines and blood to 20 clinics in remote locations in Rwanda. Malaria, infant deaths and mothers dying in childbirth are common in Rwanda. When rabies vaccine is needed urgently, this drone delivery would not be hindered by washed out roads during rainy season. Only a one third of Africans live within two kilometers of area that functions year-round. Zipline drones are launched from a nest and they deliver the items by dropping paper parachute. After the drone returns to the nest a sim card and new battery were inserted along with the blood or vaccines for the next delivery. Zipline drones are of the size of a large dog and can carry three pounds. They can fly 45 miles in 30 minutes. It's route can be tracked and changed with a tablet app.

Table 2. Comparison of healthcare delivery drones

Drone Company	Launching pad	Delivery method
Matternet	Automated ground station	Automated ground station
DHL Parcel	Automated skyport	Automated skyport
Zipline	Nest	Paper parachute
Flirtey	Airport	Dropped by rope
Delft University	Hospital, Clinic	Ground landing

The first FAA-approved drone delivery successfully delivered medical supplies to a health clinic in rural southwest Virginia [14]. The clinic operates for about 3000 patients one weekend each year. Flirtey drones delivered prescription items from the Wise County Regional airport to the clinic in the remote fairgrounds in about 3 minutes.

The duration of Delivery is usually 90 minutes along a winding bumpy road from the pharmacy in Oakwood is 35 miles away. An experimental National Aeronautics and Space Administration (NASA) manned drone delivered from Oakwood to the Wise County airport because Flirtey drone batteries at that time were limited to about 20 miles. Flirtey drones have also delivered Medical items in Nevada, Australia and New Zealand.

Table 3. Comparison of healthcare delivery drone payload, range and speed

Drone Company	Payload	Range	Speed
Matternet	2 kg	10 kg(6.25 miles)	40 kmph 25 kmph
DHL Parcel	4.4 lb	12 km (7.5 miles)	>40kmp h
Zipline	3 lb	45 miles	90 mph
Flirtey	2 kg (4.4 lb)	20 miles	?
Delft	4 kg	12 km	60 mph

University	(8.8 lb)	(7.5 miles)	

In the Netherlands, prototype ambulance drones have demonstrated the delivery of defibrillators. They can travel at the speed of up to 60 miles per hour, the drones can reach patients within a 4.6 square mile radius in a minute versus an average of 10 minutes for traditional emergency services. The response to faster drone the chance of survival to 80% vesus 8% for traditional emergency services. The drones track emergency mobile calls(In Emergency case) and use GPS to navigate. A paramedic, from a control room connected to a livestream web camera on the drone, can instruct a lay person assisting the patient. It is expected to take five years to develop an operational emergency drone network and address legal issues and improve the steering on the drones each of which it costs cost $19,000 each. There is potential for "flying medical toolbox" drones to carry other healthcare devices, such as oxygen masks or insulin injections for diabetes patients(For all pepole. Table 1 shows that the healthcare items transported by the drones are predominantly medications, blood and vaccines. Potentially, oxygen, defibrillators and insulin could be transported by the ambulance drone, which is only a prototype currently. In Table 2, we see that the launching pad is always automated and called a ground station, Skyport or nest. The delivery method is as same as in the case of Matternet and DHL Parcel and the load can be dropped as in the case of Zipline, by a paper parachute, and Flirtey dropped by rope.

4. Model Development

Several researchers have looked at various models for drone mainly for parcel delivery inspired by Google, Amazon and DHL who are exploring this option. Murray and Chu developed two models for delivery of parcels by drones. They envisage that the primary delivery vehicle would be a truck but with attendant drones to be launched from a truck. They model this as a mixed integer program of a travelling salesman problem. Computational issues associated with this model have been discussed by. Related models have been given by Ponza , Agatz e and Ferrandez et_alwho use various meta-heuristic approaches to solve the resulting integer programs. The papers published essentially concluded that there are cost savings to be realized when both trucks and drones work jointly to deliver the parcels. Hong et.al. develop a sole drone based delivery system for urban areas by positioning drone recharging stations and routing delivery paths around obstacles.

Let us consider a scenario where emergency medicines need to be delivered to an outlying area that is not completely served by good roads but is too far for drone delivery alone. Most probably we can see this often in the case of an undeveloped country. Consequently a tandem strategy is adopted whereby land-based transportation is also used to deliver from a warehouse where supplies are stored to a drone nest which is in sufficient proximity to the area of need. The problem at hand is to positioning both the warehouse which can be served by road and the drone nests which are needed to serve the "last mile" delivery to the area of need and urgent. We partition the area to be served into a no of demand clusters which could probably represent a village or group of villages and attempt to assign a drone nest to each cluster. A demanded cluster would then consist of a no of demand points for emergency supplies of medicines.

We give two models to address the above location decisions. Our first model has as objective to minimize the time of total weighted delivery sum of road and air. A downside of this objective is that some demand clusters or demand points within a cluster can have unacceptably long

delivery times. An alternative type of model is to minimize the maximum weighted time to deliver items to all demand points in all demand clusters. Generally this approach would lead to more equitable delivery times. Since there is a tradeoff between delivery time and money, all models contain a budget constraint.

4.1 Model 1

For Model 1:

Minimize total weighted time for truck/drone delivery subject to a budget and drone travel constraint. V_t, V_d are velocity of truck, drone V_t, V_d C_t, C_d are per unit costs of operation per mile for a truck and drone respectively.

Deliveries take place from a central depot at (X,Y) by truck to a point (X_i, Y_i), i=1,....n which are drone nests associated with a demand cluster. Final delivery is by drone to a demand point (a_{ij},b_{ij}), $j=1,...,m_i$. Here m_i is the number of demand points served by drone nest i. $d_i(.,.)$, $d_{ij}(.,.)$ are distance functions and W_i, W_{ij} are weights with $W_i = \Sigma W_{ij}$. These are essentially the demand at each point (a_{ij}, b_{ij}) and conservation of demand flow at drone nest (X_i, Y_i). B is budget, D is limit on drone travel. We have the following mathematical program. Minimize Total Weighted Time over X and X_i

4.2 Model 2

For Model 2:

Minimize Maximum weighted time for truck/drone delivery subject to a budget and drone travel distance constraint.

Here T is the maximum weighted time for delivery to any demand cluster or to any demand point. In the next section, we look at the use of these two models to both position assets (storage facilities and drone nests) and to assist managerial decision making with respect to budget allocation.

4.3 Numerical Results.

We look at a simple example involving three demand clusters each serving three demand points. Drones can travel at 50 miles per hour and trucks at 40 mile per hour. Costs are very difficult to pinpoint. Welch looks at costs for Amazon Prime Air [24] but it is doubtful that these estimates would apply in an undeveloped countries. Matternet estimates that drones would cost twenty four cents for a six mile of 15 minute trip by drone. Since drones generally carry one item at a time and trucks many items we assume that the unit cost per mile to deliver by a drone is twice that for a truck in our base model. Further we assume that drones are limited to 100 miles per delivery trip so the delivery point needs to be not more than 50 miles from the nest. This is actually more than present capability of a drone but we anticipate that battery life can significantly improve and extend trip times. In any case, the models are general and better estimates can be used as they become available. The overall budget will be chosen to enable feasible delivery time. Weights (demand estimates) are used in the models. Detailed values are given in the Appendix. Drones are assumed to fly in straight lines only (no obstacles) so a Euclidean metric is appropriate; on the other hand trucks need to follow the road network. In this initial paper, we assume that the distance measurement for trucks is a modified Euclidean metric which is empirically derived. In this case, we model the distance as 1.6 times the Euclidean metric. This is somewhat higher than empirical values used in the US (say ≈ 1.3) but reflects the fact that an undeveloped nation's road network is somewhat inferior.

Hence Since all models are convex, we are guaranteed global optima. We look at a few scenarios below. Model 1: Budget=$9,000 Solving Model 1 we find that the warehouse is located at X=204, Y=148 with drone nests at (46,207), (228, 197), (282, 55) serving clusters 1, 2 and 3 respectively. Hence, for example, a truck will travel from (204, 148) to (46, 207) where a drone will be loaded to fly to demand cluster 1. From the computer output, it is noted that drone nest 3 (serving cluster 3) is maximally distanced from the drone nest. Further we examine how budget changes affect the total weighted time. This is given in Figure 2 below. Increasing the budget up to about $9057 will decrease the total weighted time but further it increases do not help since the drone distance constraint becomes active. Hence in this scenario, there is no need for a budget allocation greater than $9057. At the other extreme any budget allocation less than $8980 will not meet service needs also.

As drone technology improves, clearly the distance that the drone can fly from its' nest will increase. Below we give a table that looks at the variation of maximal drone distance on warehouse and drone nest location. In order to get a richer set of results we have increased the budget by $1000.

Table 4. Location versus drone range

D	(X,Y)	$(x1,y1)$	$(x2,y2)$	$(x3,y3)$
50	(200,151)	(48,205)	(267,191)	(283,56)
55	(200,151)	(522,03)	(262,189)	(279,60)
60	(199,151)	(57,201)	(258,186)	(275,63)
65	(198,150)	(62,199)	(253,184)	(271,67)
70	(198,150)	(66,197)	(149,181)	(266,69)

From table 4 above, we note that the location of the warehouse changes minimally (200,151) to (198,150). On the other hand the drone nests can change location significantly; in the case of nest "1" from (48,205) to (66,197). However since all the requirements for a drone nest can be carried in a container, this should not be of practical significance.

Model 2: Budget=$9,000

In this case, we find that the warehouse is located at X=177, Y=157 with drone nests at (44,209), (293,202) and (287, 42). Note that the location of the drone nests are not too different from Model 1 which minimizes total weighted time. In this case, the computer output shows us that the worst weighted service time is to demand point 1 in cluster 1. Below we contrast the results from both models by comparing the total weighted times to service each demand point j from drone nest i.

Table 5. Total weighted time comparison

Drone Nest/Demand Point	Total Weighted Time Model 1	Total Weighted Time Model 2
1,1	99	85
1,2	95	81
1,3	95	80
2,1	29	36
2,2	28	36

2,3	29	35
3,1	58	74
3,2	58	74
3,3	55	71

We note that cluster 1 served by drone nest 1 gets better service using Model 2 (more equitable model) whereas clusters 2 and 3 get slightly worse service. The worst served demand point (point 1 in cluster 1) has total weighted service time reduced from 99 to 85. In an undeveloped country, it may be advisable to locate the warehouse at the international airport since this is the point of entry for medical supplies. This involves fixing the location of the warehouse say close to the international airport. Suppose then that the warehouse location is fixed at the origin so that X=0 and Y=0 is fixed. In this case, we find that the location of the drone nests are at (21, 175), (283, 142) and (283, 24) for Model 1 for Budget=$12,000 and at (26, 192), (297, 200), (281, 31) for Model 2 with Budget $15,000. The extra budget is necessary due to the longer distance that trucks travel from the airport to reach a drone nest.

5. Concluding remarks

In developing countries Drones, along with mobile technology can delivery medicines to remote locations without bothering about the road infrastructure. As stated earlier, only a third of Africans live within two kilometers of a area that functions year-round. Even in developed countries, disasters, such as earthquakes and fires, can make roads inaccessible. Furthermore, extreme weather and city congestion will act as an obstacle to emergency medical delivery. Drone technology and along with its components, such as GPS and lithium batteries, are available and improving at a rapid pace. Apart from issues related to privacy, security, safety and regulation, drones can provide beneficial and humanitarian applications, especially related to medication. Consequently, drone healthcare delivery to inaccessible locations is likely to become more expected in future.

This paper discusses some innovative applications of drones in medication. Our contribution of two models, that uses a tandem strategy involving traditional land transportation followed by drone delivery, will facilitate more efficient and economical medication delivery. Healthcare costs are a major concern in developed and developing countries also. The models use a budget constraint while providing location decisions for warehouses and drone nests which enable timely delivery. Our models can be used by drone companies, healthcare organizations , delivery companies, humanitarian organizations or governments. In some cases, governments could partner with some drone companies such as Rwanda with Zipline.

Here we have used an empirically derived form of a distance metric for truck delivery. A better representation can be to explicitly model the actual road network. Future research can also decide how many drones are needed at a particular drone nest and how well a network provides coverage for a region. Another main issue is to account for the effect of obstacles such as a high mountain on the path and integrate it into the location model. For drone delivery in a metropolitan area, path needs to be routed around airports and tall buildings, for example. Drone healthcare delivery is a new and emerging field with many opportunities for impactful future research.

6. Appendix

Here we give data that was used in the numerical work on the two models.

Table 6. Weights associated with travel from drone nest *i* to demand point *j*.

W	1	2	3
1	5	3	6
2	4	2	1
3	5	4	2

For example, $w11 = 5$ is the weight associated with travel from drone nest 1 to demand point 1 in cluster 1.

Table 7. *x* Coordinates of demand points

A	1	2	3
1	0	30	41.2
2	306	300	306
3	306	330	282

Table 8. *y* Coordinates of demand points

b	1	2	3
1	220	200	212
2	200	220	222
3	12	40	24

For example, demand point 1 in cluster 1 is at (0,220).

7. References

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Department of Computer Science & Engineering

Name of the workshop: GIS DAY
Date(s) of Conduction: 14-11-2018
No. of Days Conducted: 1
Venue & Time: PSCMR

INDEX

S. No	Title
1.	Vision & Mission
2.	Approval Letter
3.	Circular/Invitation/Brochure
4.	Guest Profile
5.	Photos
6.	Attendance List
7.	Sample Feedback forms
8.	Feedback Report analysis

Workshop Co-ordinator

HOD

Head of The Department
Dept. of Computer Science and Engineering

Post-event Summary Report

Executive Summary

Session Title	GIS DAY
Session Presenter	Dr. V. S. S. Kiran, ESRI
Date of the Event/Seminar	14-11-2018
Event/Seminar Summary	Mr. Sarat Chandra bokka, ESRI India, ESRI India has demonstrated about the significance of GIS. The keynote speaker has specified the technological advancements that are brought using Geographical information system in our country. How it is evolved. It is increasingly playing a strategic role in the countries digital transformation vision.
Seminar URL	https://www.pscmr.ac.in/cse_18_10006.php

Outcomes Met

1. Students had clear view on GIS.
2. Students secured knowledge in technological advancements.
3. Speaker delivered all the benefits of GIS software.

Event Coordinator

POTTI SRIRAMULU CHALAVADI MALLIKHARJUNA RAO
COLLEGE OF ENGINEERING & TECHNOLOGY

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Department of Computer Science & Engineering

Vision

To become center of excellence in computer science and engineering by enriching the problem solving skills and teaching environment that adapts swiftly to the challenges of the society and producing professionals who shall be the leaders in technology innovation, research, entrepreneurship and management.

Mission

M1: To practice the students with essential concepts, logical ability, problem solving and programming skills.

M2: To promote teaching and learning process that yields advancements in computer science and engineering leading to innovations and research.

M3: Practicing the organizational and leadership skills to the students with the multidisciplinary knowledge through projects, industry training, leading to a sustainable competitive edge in research and development to serve the society needs.

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Department of Computer Science and Engineering

Content Beyond Syllabus

Name of Event: Intelligent Systems

Academic Year: 2018-2019

Outcome:

1. Demonstrate a solid understanding of a variety of Intelligence System (IS) approaches

Mapping of outcomes with program outcomes

PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS0 1	PS0 2	PS0 3
*		*				*	*		*	*		*		

CSE-HOD

Head of The Department
Dept. of Computer Science and Engineerir

Gmail PottiSriramulu ChalavadiMallikarjunaRaoEnggCollege <ktexamcell@gmail.com>

Fwd: GIS Day at PSCMR

1 message

Sudhakar Kattupalli <ksudhakar@pscmr.ac.in> Wed, Nov 14, 2018 at 11:19 AM
To: ktexamcell <ktexamcell@gmail.com>

---------- Forwarded message ---------
From: **VSS Kiran** <vss.kiran@esriindia.com>
Date: Mon, Nov 12, 2018 at 1:31 PM
Subject: GIS Day at PSCMR
To: ksudhakar@pscmr.ac.in <ksudhakar@pscmr.ac.in>

Dear Sudhakar,

It was really nice to speaking to you. As discussed. PFA profile.

Thanks & Regards,

Dr. V S S Kiran

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KATTUPALLISUDHAKAR B.Tech.,M.Tech(AU).,MPIT(USQ,Australia).,
LMCSI.,LMISSE.,MIEEE.,MSDIWC.,MISAM.,MACM.,MISTE.,MISOC.,MIAS/\..
Associate Professor, Department of Computer Science & Engineering,
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Dr. Kiran_Profile.pdf
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COLLEGE OF ENGINEERING & TECHNOLOGY
Approved by AICTE, NEW DELHI and Affiliated to JNTU, Kakinada.
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D.No. 7-3-6/1, Raghava Reddy Street, Kotha pet, Vijayawada - 520 001.
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13.11.2018

CIRCULAR

It is to inform you all that there is a celebration of GIS Day (Geographical Information Systems Day) Tomorrow November 14th 2018 at 10 am in Mini Seminar Hall.

You are all invited

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Potti Sriramulu Chalavadi Mallikharjuna Rao
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VIJAYAWADA-520 001.

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Invitation

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ONE DAY WORKSHOP ON

"TRANSFORMING GIS EDUCATION"

EXPANDING YOUR CAPABILITY WITH GIS

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Sri. K. [illegible] Rao
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Joint secretary

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CHIEF GUEST
Dr. V.S.S. Kiran
[illegible] Solutions Manager - ESRI
[illegible] Modeling Specailist
[illegible]

[illegible]
M[illegible] Sudha[illegible]
[illegible]

CONVENER
Dr. [illegible] Patanjali Sastri
HOD CSE

Invitation

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CHIEF GUEST

Dr. V.S.S. Kiran

Presales & Technology Solutions Manager - ESRI
Geospatial Professional and Catastrophic Modeling Specialist
(INDIA, AUSTRALIA & USA)

COORDINATOR

Mr. K. Sudhakar

Associate Professor (CSE)

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GIS

GIS day 2018

Dr. V. S. S. KIRAN

Presales & Technology Solution Manager at Esri India

Geospatial Professional & Catastrophic Modelling Specialist (India, Australia & US)

Personal Information

Qualification : PhD in Geoengineering, M.Sc. in Remote Sensing & GIS, PGDCA
Specialization : Hydrological Modeling, 2D & 3D mapping and Image Processing
Professional Experience : 8.5 years

Research Information

Papers in Journals	: 12	**Chapter of Books**	**1**
Papers in Conferences	: 10	**Course Content/Materials**	: 15
M.Sc. Project guided	: 10	**Articles in Magazines**	: 2

Projects

Projects Completed : 12
Area of Work : Defense Application, Water & Land Resources, 2D & 3D Mapping, Urban Planning, Reinsurance, Catastrophe, Heritage.

Conferences

National Conferences Attended : 08
International Conferences Attended : 02
Workshops Delivered : 10 including APSAC, GSI, NWA and NIH etc.

Technical Skills

Web Technologies, Database, Programming Languages, Microwave & Hyperspectral Remote Sensing, Image Processing, GIS 2D & 3D, Mobile GIS, Photogrammetry, LiDAR, UAV and CAD technologies.

Employment Chronicles

1. Geospatial Application Engineer in an RSI Softech India Pvt Ltd (2010- 2012)
2. Subject Matter Expert in an IIC Technologies Pvt ltd (2012- 2015)
3. Catastrophic Modelling Specialist in a Willis India Processing Ltd (2015 to 2017)
4. Presales & Technology Solution Manager at Esri India (2017 to till)

Teaching Profile

1. 950 National Students Trained in 25 National training Programs
2. 77 International Students Trained in 07 International training Programs

Achievements & Rewards

Best Paper Award : 03
National Level Award : Rastrapati Rover Award, 2008 by our Hon'ble President Pratibha Patil

Member for Professional Bodies:

IACSIT (International Association of Computer Science and Information Technology)
APCBEES (Asia Pacific Chemical, Biological & Environmental Engineering Society)

Journals Reviewer:

IJSR, IJSTR, IJSER and Elsewhere

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Journals Reviewer:

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Indian Servers

Vijayawada,
Dt. 12-May-2022

Offer letter for the INTERNSHIP at INDIAN SERVERS

Dear Ms. Beesa. Sri keerthana

At the onset, let me congratulate you upon being selected for the INTERNSHIP program At INDIAN SERVERS

Indian Servers is one of the growing IT services companies. We provide complete end- to-end outsourcing solutions for various industries. We have a comprehensive set of solutions for the Educational Institutes, banking, finance, insurance, manufacturing, retail & distribution and contracting sectors. Indian Servers has marketing presence & client base in all over India, United States, United Kingdom, Australia UAE etc. The company has operations and a customer base spanning Across 8 countries including software development centres in India. Internship period will be Minimum 6 weeks from the date of offer. Basic training will be provided to you to accomplish tasks Your INTERNSHIP with Indian Servers shall obey the below mentioned terms and Conditions.

1. During the period of INTERNSHIP you will perform the roles of Software Trainee
2. Your INTERNSHIP will continue till the completion of the project and for a minimum of 6 Weeks to 9 Weeks.
3. Any training related coaching or training will be provided to you by the highly qualified technical team at INDIAN SERVERS.
4. During the INTERNSHIP, if your performance reaches the standard and expectation of the company, the A BASIC STIPEND would be offered to you. However, this does not mean A GUARANTEED STIPEND would be provided to you.
5. During the INTERNSHIP, you are requested to maintain the decorum of the COMPANY, as this will have an impact on your project completion certificate

Indian Servers

6. You will come under NDA (Non-Disclosure Agreement), which in its meaning shall mean but not limited to

a. You shall not disclose any information related to the projects, company Sensitive information, technical details, assets, products and anything of similar importance, to your friends, family members or any other known or unknown people.

b. All the material, whether movable or immovable, intellectual or physical, shall be carried only with in the INDIAN SERVERS office inside premises only to the extent to discuss it with technical team of the company. Other than this, any such material is strictly prohibited from being carried.

7. Any breach in the RULE No. 6 shall be considered as a legal punishable Offence and you shall be liable to produce in the court of LAW.

8. In case of any behavioural issues from the colleagues, it shall immediately Be brought to the notice of the higher official in the company.

9. Any behavioural issue from your side, if reported or observed, shall be considered seriously and an appropriate action will be taken, including Rustication of your internship with Indian Servers.

10. Indian Servers does not hold any responsibility for all your belongings during the entire internship period.

11. Completion letter will be issued only if you are active throughout the internship period by completing all assignments and project work given to you

I and TEAM INDIAN SERVERS welcome you all, to have a successful technical journey.

Your UID: **IndServ22a476**

With warm regards,

Sai Satish

D. SaiSatish
CEO, Indian Servers

I agree to all terms and Conditions

Beesa. Sri keerthana

PS: A signed copy of this document should be submitted in the office at the earliest.
This document can be verified for next 6 years of the date of issued subject to conditions

Spoken Tutorial
Project at
IIT Bombay

Certificate for Completion of Cpp Training

This is to certify that **SAI HITESH YADAV AVULA** has successfully completed **Cpp** test organized at **Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering and Technology** by **B SRIKANTH REDDY** with course material provided by the Spoken Tutorial Project, IIT Bombay. Passing an online exam, conducted remotely from IIT Bombay, is a pre-requisite for completing this training.

bhsrikanth reddy from **Potti Sriramulu Chalavadi Mallikarjuna Rao College of Engineering and Technology** invigilated this examination. This training is offered by the Spoken Tutorial Project, IIT Bombay.

July 10th 2021

Prof. Kannan M Moudgalya
IIT Bombay

Spoken Tutorial is a project at IIT Bombay, started with funding from the National Mission on Education through ICT, Ministry of Education (previously MHRD), Govt. of India