

Aditya College of Engineering & Technology

Aditya Nagar, ADB Road, Surampalem – 533437

Electronics And Communication Engineering

**INSTITUTE VISION AND MISSION**

**VISION:**

To induce higher planes of learning by imparting technical education with

* International standards
* Applied research
* Creative Ability
* Value based instruction and to emerge as a premiere institute.

**MISSION:**

Achieving academic excellence by providing globally acceptable technical education by forecasting technology through

* Innovative Research And development
* Industry Institute Interaction
* Empowered Manpower

**DEPARTMENT VISION AND MISSION**

**Vision:** To emerge as a center of excellence in education and research

**Mission:**

* To establish skill and learning centric infrastructure in thrust areas
* To develop Robotics and IOT based infrastructure Laboratories
* To organize events through industry institute collaborations and promote innovation
* To disseminate knowledge through quality teaching learning process.



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Electronics And Communication Engineering

**PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

**Program Name:** Bachelor of Technology (B.Tech) in Electronics and Communication Engineering.

**PEO1:** Graduates shall evolve into skilled professionals capable of handling interdisciplinary work atmosphere and excel in problem solving.

**PEO2:** Graduates shall inculcate the urge to progress in the chosen field of Electronics & Communication through higher education and research.

**PEO3:** Graduates shall ingrain professional values through Ethics based teaching learning process.

**PEO4:** Graduates shall exhibit leader ship skills and advance towards Entrepreneurship, Innovation and lifelong learning.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

**Program Name:** Bachelor of Technology (B.Tech) in Electronics & Communication Engineering

**PSO1:**  Industry ready in the arena of electronics & communication, VLSI, Robotics, Embedded Systems, IOT and allied fields.

**PSO2:** Aquire the required ability and knowledge to design, test, verify and develop innovative electronics projects through theoretical and laboratory practice.



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Electronics And Communication Engineering

**PROGRAM OUTCOMES (POs)**

PO1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/Development of Solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct Investigations of Complex Problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern Tool Usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

PO11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. **Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**B. Tech 4/4, II-SEMESTER**

**Course Outcomes**

Upon completion of the course, students will be able to:

|  |  |  |
| --- | --- | --- |
| **CO#** | **Course Outcomes** | **Blooms Taxonomy level** |
| **CO1** | Identify the problem by applying acquired knowledge. | Remember |
| **CO2** | Use literature to identify the objective, scope and the concept of the work. | Apply |
| **CO3** | Analyse and categorize executable project modules after considering risks. | Analyse |
| **CO4** | Choose efficient tools for designing project modules. | Evaluate |
| **CO5** | Integrate all the modules through effective team work after efficient testing. | Create |
| **CO6** | Explain the completed task and compile the project report. | Understand |

**CO-PO/PSO MATRIX:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO**  **10** | **PO**  **11** | **PO**  **12** | **PSO**  **1** | **PSO**  **2** |
| **CO1** | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - | 2 | - |
| **CO2** | 1 | 2 | 2 | 2 | - | - | - | - | 2 | - | - | - | 1 | - |
| **CO3** | 3 | - | - | 3 | - | - | - | - | - | - | - | - | 2 | 1 |
| **CO4** | - | - | - | - | 3 | 3 | - | - | - | - | 2 | - | - | 2 |
| **CO5** | - | 2 | - | - | 2 | - | - | - | 3 | 2 | - | - | 1 | 2 |
| **CO6** | - | - | - | - | - | - | - | - | 2 | 2 | - | - | - | 3 |
| **Course** | 2.3 | 2.3 | 2 | 2.5 | 2.5 | 3 | - | - | 2.3 | 2 | 2 | - | 1.5 | 2 |

**Signature of the Guide**

**CO-PO Justification:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | PO/PSO |  |  |
| CO1 | PO1 | 3 | Highly mapped as we need to know the basic concepts of Arduino. |
| PO2 | 3 | Highly mapped as we need to identify, analyze and formulate different types of sensors. |
| PO3 | 2 | Moderately mapped as we need to build solutions for difficulties using Arduino and the Arduino IDE. |
| PSO1 | 2 | Moderately mapped as in the realm of electronics and communication, we must train ourselves to be industry ready. |
| CO2 | PO1 | 1 | Moderately mapped as we have to acquire knowledge on basic concepts by using the literature. |
| PO2 | 2 | Moderately mapped as we need to identify and analyze problems related to Arduino and the Arduino IDE. |
| PO3 | 2 | Moderately mapped as we will be able to discover a solution for monitoring the vehicles condition. |
| PO4 | 2 | Moderately mapped as we will be able to investigate the  complex problems in the project. |
| PO9 | 2 | Moderately mapped as we need to work together to study and analyze the tools and technologies. |
| PSO1 | 1 | Moderately mapped as in the realm of electronics and communication, we must train ourselves to be industry ready. |
| CO3 | PO1 | 3 | Highly mapped as we should have the knowledge on Arduino which is the necessary module. |
| PO4 | 3 | Highly mapped as we need to analyze the Arduino board and connect the hardware components to suitable pins. |
| PSO1 | 2 | Moderately mapped as in the realm of electronics and communication, we must train ourselves to be industry ready. |
| PSO2 | 1 | Moderately mapped as we will need to upgrade the lab infrastructure and examine the results. |
| CO4 | PO5 | 3 | Highly mapped as we must have a fundamental understanding of all of the components we will use in our project. |
| PO6 | 3 | Highly mapped as our developed project is going to help the driver to know the condition of the vehicle by monitoring the values. |
| PO11 | 2 | Moderately mapped as the details of leadership is easily understood by the students. |

|  |  |  |  |
| --- | --- | --- | --- |
| CO5 | PO2 | 2 | Moderately mapped as we need to analyze the problem of monitoring the values from the system and find the solution for it. |
| PO5 | 2 | Moderately mapped as we should know about modern tools and integrate all the hardware components. |
| PO9 | 3 | Highly mapped as we need to work together to study and analyze the tools and technologies. |
| PO10 | 2 | Moderately mapped as the we will be able to communicate with each other and explain our work in presentations. |
| PSO1 | 1 | Moderately mapped as in the realm of electronics and communication, we must train ourselves to be industry ready. |
| PSO2 | 2 | Moderately mapped as we integrated all the modules and developed data monitoring system using IOT. |
| CO6 | PO9 | 2 | Moderately mapped as we need to work together to study and analyze the tools and technologies. |
| PO10 | 2 | Moderately mapped as we will be able to communicate with each other and explain our work in presentations. |
| PSO2 | 3 | Highly mapped as we have compiled the project vehicle monitoring system through theoretical and laboratory practice. |

**Signature of the Guide**

A Project Report on

**FLOOR CLEANING ROBOT USING ROTATING WIPER AND VACUUM CLEANER**

Submitted in partial fulfilment of the requirements for the award of the degree of

**BACHELOR OF TECHNOLOGY**

**in**

**ELECTRONICS AND COMMUNICATION ENGINEERING**

Submitted by

**R.SATHIRAJU (20P31A04G6)**

**S.D.S. LAKSHMI (20P31A04H0**

**G. CHANDINI (20P31A04D5)**

**S. VIKASH (20P31A04G8)**

**Under the esteemed guidance of**

**Mr. K.L.V.PRASAD, M.Tech , (Ph.D)**

**Assistant Professor**

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**ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY**

**Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada Accredited**

**by NAAC (A+) and NBA**

**Surampalem, Kakinada District, Andhra Pradesh - 533437**

**2023-2024**

**ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY**

***(Permanently Affiliated to JNTUK, Approved by AICTE)***

**Department of Electronics and Communication Engineering**

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**CERTIFICATE**

This is to certify that the project report entitled “**FLOOR CLEANING ROBOT USING ROTATING WIPER AND VACUUM CLEANER”** is being submitted by **R.Sathiraju (20P31A04G6), S.D.S.Lakshmi (20P31A04H0), G.Chandini (20P31A04D5), S.Vikash (20P31A04G8)** has been carried out in the partial fulfillment of the requirement for the award of the degree of **Bachelor** **of Technology** in **Electronics and Communication Engineering**, **Aditya College of Engineering & Technology**, Surampalem affiliated to **JNTUK, Kakinada** is a record of bonafide work carried out by them under my guidance and supervision during the academic period 2023-2024.

**Project Guide Head of the Department**

**Ms. K.L.V.PRASAD, M.Tech, (Ph.D) Dr. R. V. V. KRISHNA, M. Tech, Ph.D.**

**Assistant Professor Professor & HOD**

**Dept. of ECE Dept. of ECE**

**EXTERNAL EXAMINER**

**DECLARATION**

We hereby declare that this project entitled "**FLOOR CLEANING ROBOT USING ROTATING WIPER AND VACUUM CLEANER**" has been undertaken by us and this work has been submitted to **ADITYA COLLEGE OF ENGINEERING AND TECHONOLOGY**, Surampalem affiliated to JNTUK, Kakinada, in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY in ELECTRONICS AND COMMUNICATION ENGINEERING**.

**Yours sincerely,**

**R. Sathiraju (20P31A04G6)  
 S.D.S. Lakshmi (20P31A04H0)  
 G. Chandini (20P31A04D5)  
 S. Vikash (20P31A04G8)**

**ACKNOWLEDGEMENT**

It gives us immense pleasure to express a deep sense of gratitude to my **guide** **Mr. K.L.V.Prasad, M.Tech, (Ph.D)** Assistant Professor, Department ECE for wholehearted and invaluable guidance throughout the project work. Without sustained and sincere effort, this project work would not have taken this shape. She encouraged and helped us to overcome various difficulties that we have faced at various stages of our project work.

We would like to sincerely thank our **Head of the department** **Dr. R V V Krishna, M.Tech., Ph.D** for providing all the necessary facilities that led to the successful completion of our project work.

We would like to take this opportunity to thank our beloved **Principal** **Dr. T K Ramakrishna Rao**, **M.Tech., Ph.D** for providing all the necessary facilities and a great support to us in completing the project work.

We would like to thank all the faculty members and the non-teaching staff of the Department of Electronics and Communication Engineering for their direct or indirect support for helping us in completion of this project work.

Finally, we would like to thank all our friends and family members for their continuous help and encouragement.

With Sincere regards,

**R.Sathiraju (20P31A04G6)  
 S.D.S.Lakshmi (20P31A04H0)  
 G.Chandini (20P31A04D5)  
 S.Vikash (20P31A04G8)**

**ABSTRACT**

Cleaning is important work approximate every place. Sometimes this is easy and sometimes difficult. Sometimes we assigned people for purpose of cleaning and pay money and sometimes cleaning is required in areas where presence of living being dangerous so we cannot assigned living being in every place. Some places are so that have a large floor areas in that place for cleaning purpose we need more than one person so we required some technique to compensate this problems. In advancement of science a robot come in light but in operate by a personnel. To avoid these limitations of personnel we require more technologies. Households of today are becoming smarter and more automated. Home automation delivers convenience and creates more time for people. Domestic robots are entering the homes and people’s daily lives, but it is yet a relatively new and immature market. However, a growth is predicted and the adoption of domestic robots is evolving. In the modern era, the Android based Floor Cleaner is required. Thus, the cleaner is designed in such a way that it is capable of cleaning the area reducing the human effort just by starting the cleaning unit. This Project is designed to build and program it in such a way, that it can move around freely and clean a specific area by the vacuuming process. With the advancement of technology, robots are getting more attention of researches to make life of mankind comfortable.