 

**A Minor Project Report on**

**AUTOMATIC STREET LIGHTING**

**Submitted by**

**ATHIKESAVAN S(927622BEE009)**

**CHARMITHA P S(927622BEE015)**

**KARNA S (927622BEE051)**



**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING M.KUMARASAMY COLLEGE OF ENGINEERING**

(An Autonomous Institution Affiliated to Anna University, Chennai) THALAVAPALAYAM, KARUR-639113.

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**M.KUMARASAMY COLLEGE Of ENGINEERING**

(Autonomous Institution, Affiliated to Anna University, Chennai)

**BONAFIDE CERTIFICATE**

Certified that this Report titled **“AUTOMATIC STREET LIGHTING”** is the bonafide work of **ATHIKESAVAS(9276BEE009) ,**

**CHARMITHA P S(927622BEE015) ,**

**KARNA S(927622BEE051)** who carried

AUTOMATIC STREET LIGHTING out the work during the academic year (2023-2024) under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report.

**SIGNATURE SIGNATURE**

**SUPERVISOR HEAD OF DEPARTMENT**

Mr.P MANIRAJ Dr.J.Uma M.E., Ph.D.,

Assistant Professo Professor & Head

Department of Electrical and Department of Electrical and Electronic Engeneering Electronics Engineering

M.Kumarasamy College of M.Kumarasamy College of

Engineering, Karur Engineering, Karur

Submitted for Minor Project I (18EEP201L) viva-voce Examination held at M.Kumarasamy College of Engineering,Karur-639113 on ………………..

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**DECLARATION**

We affirm that the Minor Project report titled “**AUTOMATIC STREET LIGHTING ”** being submitted in partial fulfillment for the award of **Bachelor of Engineering in Electrical and Electronics Engineering** is the original work carried out by us.

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| --- | --- | --- |
| **REG.NO** | **STUDENT NAME** | **SIGNATURE** |
| **927622BEE009** | **ATHIKESAVAN S** | **------------------------** |
| **927622BEE015** | **CHARMITHA P S** | **------------------------** |
|  |  |  |
| **927622BEE051** | **KARNA S** | **------------------------** |

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VISION AND MISSION OF THE INSTITUTION

**VISION**

* To emerge as a leader among the top institutions in the field of technical education

**MISSION**

* Produce smart technocrats with empirical knowledge who can surmount the global Challenges.
* Create a diverse, fully-engaged, learner - centric campus environment to provide Quality education to the students.
* Maintain mutually beneficial partnerships with our alumni, industry and Professional associations.

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING VISION**

To produce smart and dynamic professionals with profound theoretical and practical knowledge comparable with the best in the field.

**MISSION**

* Produce hi-tech professionals in the field of Electrical and Electronics Engineering by inculcating core knowledge.
* Produce highly competent professionals with thrust on research.
* Provide personalized training to the students for enriching their skills.

**PROGRAMME EDUCATIONAL OBJECTIVES(PEOs)**

* **PEO1:** Graduates will have flourishing career in the core areas of Electrical Engineering and also allied disciplines.
* **PEO2:** Graduates will pursue higher studies and succeed in academic/research careers
* **PEO3:** Graduates will be a successful entrepreneur in creating jobs related to Electrical and Electronics Engineering /allied disciplines.
* **PEO4:** Graduates will practice ethics and have habit of continuous learning for their success in the chosen career.

**PROGRAMME OUTCOMES(POs)**

After the successful completion of the B.E. Electrical and Electronics Engineering degree program, the students will be able to:

**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, review 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 modeling to complex engineering activities with an understanding of the limitations.

**PO6:The Engineer and Society:** Apply reasoning in formed 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 multi-disciplinary 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, and 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 multi-disciplinary 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.

**PROGRAM SPECIFIC OUTCOMES(PSOs)**

The following are the Program Specific Outcomes of Engineering Students:

* **PSO1:** Apply the basic concepts of mathematics and science to analyse and design circuits, controls, Electrical machines and drives to solve complex problems.
* **PSO2:** Apply relevant models, resources and emerging tools and techniques to provide solutions to power and energy related issues & challenges.
* **PSO3:** Design, Develop and implement methods and concepts to facilitate solutions for electrical and electronics engineering related real world problems.

|  |  |
| --- | --- |
| **Abstract (Key Words)** | **Mapping of POs and PSOs** |
|  |  |

[**ACKNOWLEDGEMENT**](https://www.google.com/search?rlz=1C1CHBD_enIN820IN820&q=ACKNOWLEDGEMENT&spell=1&sa=X&ved=0ahUKEwj99az1_ZXhAhVN63MBHRVODE4QkeECCCkoAA&cshid=1553265789884876)

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We are glad to thank all the **Faculty Members** of **Department of Electrical and Electronics Engineering** for extending a warm helping hand and valuable suggestions throughout the project.

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**ABSTRACT**

In today's world, more amount of electricity is consumed due to street light. This due to continuous operation of lighting during the night time .In order to reduce the electricity consumption and wastage of energy. The system that has to combine the existing network with intelligence to think itself This newly developed concept will be enabled in the street light to adjust automatically based on the real time traffic conditions and change the intensity of light. This project is concerned with the development and implementation of low cost sensor based street light. It helps to reduce the energy consumption. It consists of IR sensor, control unit and memory device. It observe the vehicles movement on the road. When there is movement of vehicles the intensity of light is high, where there is no movement of vehicles the intensity of light is low. It can helps to control the intensity of the light. It can decrease the electrical consumption. The intensity of the light is depends upon the input signal of the sensors. The system is controlled by microcontroller

**SURVEY FORM**

**(SAMPLE)**

**CHAPTER 1**

**SURVEY FORM ANALYSIS**

**1.1 NAME AND ADDRESS OF THE COMMUNITY:**

**1.2 PROBLEM IDENTIFICATION:**

**CHAPTER 2**

**LITERATURE REVIEW**

**Paper 1: Title**

**Inference:**

**Paper 2: Title**

**Inference:**

**Paper 3: Title**

**Inference:**

**Paper 4: Title**

**Inference:**

**Paper 5: Title**

**Inference:**

**(Minimum 5 Paper / Sources Required)**

**CHAPTER 3**

**PROPOSED METHODOLOGY**

**3.1 DESCRIPTION**

Street light comprises of a main power supply for providing power to the system, sensor for detecting the presence of an object, a light dependent resistor (LDR) for detecting the presence of light, a microcontroller for receiving the signal from both the sensors and control the system accordingly, a dual power supply unit for providing power to integrated chip embedded inside the micro controller and LEDs. As the vehicle passes on the road it can be sensed by the IR sensor.The system can adjust the intensity of light to provide brighter illumination in the movement of vehicles , Where there is no movement of vehicles it automatically reduce the intensity of light . Implement this system we can adjust the brightness of the light .It can Reduce the electrical power consumption around 35% to 40% of electricity. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. Microcontroller is a compact integrated circuit designed to govern a specific operation in an embedded system. A typical microcontroller includes a processor, memory and input/output (I/O) peripherals on a single chip. An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm … 50 µm.The IR sensor to make the lights turn DIM or HIGH.

|  |  |  |
| --- | --- | --- |
| **TRAFFICS** | **IR SENSOR** | **LIGHT** |
| **0** | **0** | **0 (Dim)** |
| **0** | **1** | **1 (High)** |
| **1** | **0** | **1 (High)** |
| **1** | **1** | **1 (High)** |

Thus, The using of arduino the Traffic is low(0)by using of arduino by sensing IR sensor the traffic is low(0), the light gets turn(DIM).the traffic is high and also the IR sensing high the light gets turn(HIGH) **.**

**3.2 COST ESTIMATION:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **COMPONENT**  **USED** | **QUANTITY** | **COST** |
| **1.** | ARDUINO | **01** | **1500** |
| **2.** | LDR | **01** | **50** |
| **3.** | IR SENSOR | **01** | **50** |
| **4.** | SERIAL MONITOR | **01** | **300** |
| **5.** | MICROCONTROLLER | **01** | **400** |
|  |  | **TOTAL** | **2300** |

**3.3 BLOCK DIAGRAM:**

**CHAPTER 4**

**FUTURE SCOPE & ITS IMPLEMENTATION PLAN**

* These smart lights will help cities reduce electricity costs, lower CO2 emissions, and improve maintenance. With auto-dimming, scheduling, and a host of other capabilities, cities could see a 50-75% reduction in energy costs via smart street lighting
* Automatic street lighting is a lighting technology designed to save energy, where the control system is set up in light of the conditions such as having oriented parts. This lighting technology is designed to save energy and maintain resourcescertain circumstances and rules. The automatic street lighting term is based on the lighting technology that is increased in the process of increased energy and opening and environment, where its system controls the lighting and modifies the controlling in accordance with it by controlling the operation
* Smart control smart lighting technology based on intelligent control system controls the degree and timing of lighting the lamps, according to the signals that are taken by the light sensors in the place. The system works, for example, on lighting of a particular bulb in the way. If the person moves from one walk path to another, the system of the lighting will turn on with the maximum intensity of light
* The most important features of smart lighting can be illustrated by the electricity is reduce electricity consumption, running cost, emission and the light lifetime.

**References:**

Kokilavani MM, Malathi A. Smart street lighting system using IoT. Int J Adv Res Appl Sci Technol. 2017;3(11):8–11.

Smys S. Artificial neural network based power management for smart street lightingsystems. J Artif Intell. 2020;2(1):42–52.10.36548/jaicn.2020.1.005