IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Innovation Of Advanced Roads For Traffic Saftey Management

B. Lakshmi, S. Manasa, Badisha Sanjay Raj, Palakurthi Arunsai, Potharam Abhilash.

Assistant Professor, Assistant Professor, Student, Student, Student
Civil Engineering, Kommuri Pratap Reddy Institute of Technology, Hyderabad, India.

Abstract: Advanced roads represent the future of transportation infrastructure, integrating advanced technologies to enhance safety, efficiency, and sustainability. Equipped with sensors. This ensures safety in Accident prone areas by integrating Hydraulic poles to control the speed of vehicles at intersections this can be useful reducing accidents. and we can generate some amount of electrical energy by integrating rolling speed bumps in the modern road networks. And the integration of senso based lights on this type roads can help us in saving some amount of electricity. The Use of renewable sources ike solar in roads results in environmental sustainability

I. INTRODUCTION

Roads are the arteries through which the economy pulses. By linking producers to markets, workers to jobs, students to school, and the sick to hospitals, roads are vital to any development agenda.
The roads which are now in practice in all parts of the world are the ones which not only provide transport. But integration of some advanced technologies. These roads are called ADVANCEDROADS.
The roads which contribute the power generation and easy the way of driving for a driver.

II. OBJECTIVES

2.1 Automatic Street Lights

Street lights are the major requirement in today's life of transportation for safety purposes and avoiding accidents during night. Despite that in today's busy life no one bothers to switch it off/on when not required. The project introduced here gives solution to this by eliminating manpower and reducing power consumption. This requires three basic components i.e. LDR, Sensors and microcontroller.
During daytime there is no requirement of street lights so the LDR keeps the street light off until the light level is low or the frequency of light is low the resistance of the LDR is high. This prevents current from flowing to the base of the transistors. Thus the street lights do not glow.
As soon as the light level goes high or if light falling on the device is of high enough frequency, photons absorbed by the semiconductor give bound electrons enough energy to jump into the conduction band. The resulting free electron (and its hole partner) conduct electricity, thereby lowering resistance. Now the circuitry goes in on condition and the block diagram represented here starts working.

2.2 Rolling Speed Breakers

Power generation has become a major need for human life. Energy is an important input in all the sectors of any countries economy. Energy drives economic growth, primarily generated from traditional sources. The availability of regular conventional fossil fuels will be the main sources for power generation, but there is a fear that they will get exhausted eventually by the next few decades. Therefore, we have to look into other types of renewable sources. The day-to-day increasing population and decreasing conventional sources for power generation, provides a need to think on non-conventional energy resources. Declining conventional energy

sources highlight the urgency to shift towards renewable, eco-friendly alternatives. This transition is essential to reduce environmental harm, combat climate change, and safeguard our long-term energy supply. Another major problem, which is becoming the exiting topic for today is the pollution. So, non-conventional power source is needed to reduce this problem.

2.3 Hydraulic Roads Bollards

Automatic hydraulic rising bollards , a type of anti-crash security barrier. Automatic bollard Integrates hydraulic rams inside, compare to traditional rising bollard with hydraulic power unit, have easy installation, save budget, after-sales easy maintenance several advantages, connect with control system and main power can operate directly

Standard bollard cylinder material is 304 stainless steel, assure corrosion and rust resistance. Cooperated with SGS company, our automatic bollards passed series of tests to guarantee bollard stable work ability, including continues 5000 lifting test, IP68 water proof and dust proof test, temperature test. According to different types, equipment rising time could range from 1s until 3 seconds.With emergency release system, power outage or other emergencies, can be artificially lower, release vehicles. Automatic rising bollard is suitable for high-frequency, high-security vehicle access places. Applied to the parks, government organizations, airports, military bases, car parks and other areas.

III. LITERATURE REVIEW

Our project is related to today's technology being used around the world. Therefore, we also implement all the current electronics in our project, such as LDR, ultrasonic. Then we do some research on the functionality and uses of certain web browsers to understand it. In fact, we hope to find out more about electronics that are growing and used around the world. Below, we will tell you more about everything we use and review it in our projects. We are also responsible for providing a deep understanding of all our readers about our projects. We hope this project will enable the public to know what technology is today. Each study we undertake is assisted by our colleagues and our supervisors so that all information provided below is accurate and correct.

3.1 . Metal Halide Lamp (MH)

Metal Halide is a type of HID (high-intensity discharge) lamp. It works when an electrical arc goes through a gaseous mix, causing light to be produced. MH is produced as a result of combining halogen and metal. Then mix gases normally include mercury, xenon or argon, and variety of metal halides. Additionally, the type of metal halides used helps determine the colour temperature of the light emitted.

3.2 Light-Emitting Diode Lamps.

Light-emitting Diode (LED) lamp is a semiconductor device that emits visible light when an electric current passes through it. The light is not particularly bright, but in most LED’s it is monochromatic, occurring at a single wavelength. The output from a LED can range from red (the wavelength is about 700 nanometers) to blue-violet (about 400 nanometers). Some LEDs can emit infrared energy is about 830 nanometers or longer. Such as device is known as an infrared-emitting diode (IRED).

IV. METHODOLOGY

Improvement of streetlights with added technology and other components to make sure the citizen feel safer especially at night. Besides, electricity is quite an area able to reduced due to the closure of lights whenever there were no people in that area. In automation LED streetlights, we had added such as ultrasonic sensor and Light Dependent Resistor (LDR) to fulfil of our requirement objectives. Besides, other hardware or components involved in this automation of LED streetlights will be specified in detail information.

COMPONENTS OF AUTOMATIC STREET LIGHTS

- 1 1K RESISTORS

  Resistor 1K ohm, connected from LDR and ground. Other than that, we use 220 ohm for connect to LED for the prototype. Function we use resistors to reduce current flow, adjust signal levels, to divide voltages, bias active elements, terminate transmission lines and reduce LED brightness. Price we buy it at shopee with price RM1.00 to 10 fipieces.

- LDR SENSOR

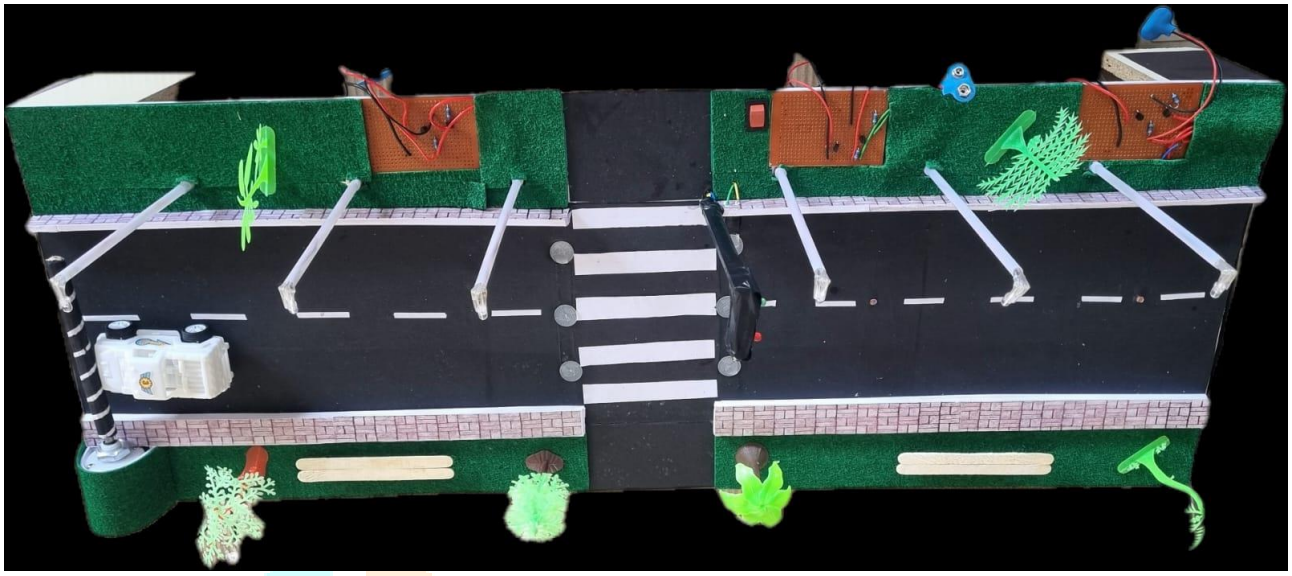
  LDR is a component that has a resistance that changes with the light intensity that falls upon it. This allows LDR to be used in light sensing circuits. The most common type of LDR has a resistance that falls with an increase in the light intensity falling upon the device

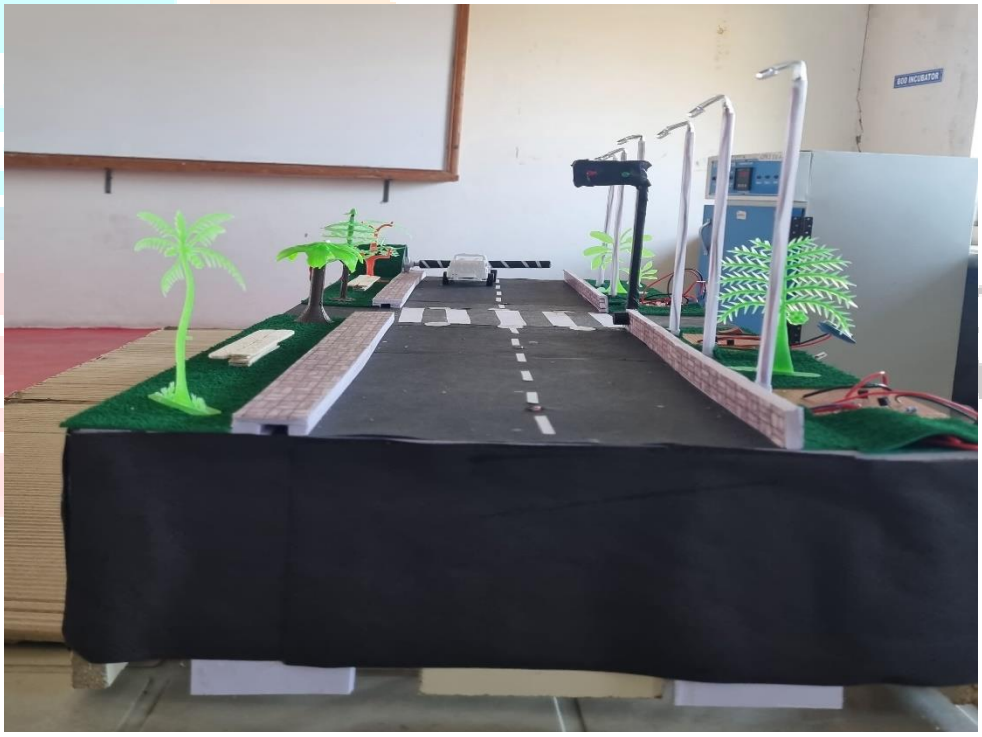
V. FUTURE SCOPE

Improvement recommendation is to include a remote control system in this project. Its use is to control the system at a long distance and help in the event of any damage and for maintenance. Besides that, the installation of solar panels to reduce the rate of electricity consumption and be able to function without aid of electricity from socket because the source of electricity is stored in the battery. Automatic streetlight also can be upgrade with a better antenna to get a better connectivity

- To operate traffic signals.
- Energy required for fans, light, computers and barrier of tollbooth.
- Speed Controller.
- CCTV cameras on highway

MODEL OF INNOVATION OF ADVANCED ROADS FOR TRAFFIC SAFTEY MANAGEMENT





REFERENCES

1.Adarsh,Mohamed Kaleemuddin S,Dinesh Bose, K I Ramachandran(2016), Performance comparison of Infrared and Ultrasonic sensors for obstacles of different materials in vehicle/ robot navigation applications,

2. Baharuddin Mustapha,Aladin Zayegh,Rezaul K. Begg(2013), Ultrasonic and Infrared Sensors Performance in a Wireless Obstacle Detection System,

3. Shane L.Silsby, PE(2013), HPS to LED Conversion –A City of Phoenix Experience,

4. Indra Riyanto, Lestari Margatama, H. Hakim, Martini and Dicky Edwin Hindarto(2018),Motion Sensor Application on Building Lighting Installation for Energy Saving and Carbon Reduction Joint Crediting Mechanism,

5. Bill Klose(2017),What are the Differences Between Vehicle-Detection Technologies?,20 september 2017 from

6. Annamalai Arunachalam, Eco-friendly Electricity generation: Electricity from speed-breakers, India, 2011.

7. Awasthaman.V & Priyadarshini. M, Every Speed Breaker is Now a Source of Power, IPCBEE vol.1, Singapore.

8. The 8051 Microcontroller and Embedded systems by Muhammad Ali Mazidi and Janice Gillispie Mazidi , Pearson Education.

9. Electronic Devices and Circuit Theory, Boylestad.

10. Sensors: Advancements in Modeling, Design Issues, Fabrication and Practical by Subhas Chandra [4] Handbook of Moder