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Ultra Violet Sterilization System with UV Lamp Failure Detection and Monitoring Over IOT

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ABSTRACT:

The project has been aimed at achieving a solution for huge energy wastage by introducing a method to control and monitor the ON and OFF timings of street lights by both automatically and manually from a remote location using Internet of Things (IoT). Conventional street lights in most of the areas are turned ON and OFF manually in the evening before the sun sets and the next day morning after there is sufficient sunlight and do not have a controlling system. The complete setup incorporates the use of Light Dependent Resistors (LDR) for sensing the light intensity in the environment and the sunlight falling on them to control the street lights. The lights will automatically glow once the sun goes down or at times when the intensity of light falling on the sensors diminishes due to stormy weather. A major leap has been taken in the project by using ESP 8266 Wi-Fi module for integrating the sensor with the street light and also for monitoring and controlling the whole network in real time from any remote location through the internet.

Keywords: IOT platform, Wifi, ESP8266, LDR, IOT .

1. INTRODUCTION:

Now–a-days Street light have become a vital aspect including road safety. A lot of electricity is consumed by street lights. So it is imperative to save the power as much as we can. The cost of electricity continues to increase as wastage of energy increases. It has become very crucial for saving power. Street light monitoring control is an automated system designed to improve the efficiency by automatically controlling the switching of street light. This project describes a new solution for street light control system [1]. It consists of wireless technology. The street lights are controlled by the base server by just sending a notification by using wireless network. It consists

of a client-server application. The primary motive behind implementing this project is to save the energy [2].

An embedded system is a computer system designed to perform one or a few dedicated functions often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. By contrast, a general-purpose computer, such as a personal computer (PC), is designed to be flexible and to meet a wide range of end-user needs. Embedded systems control many devices in common use today. Embedded systems are controlled by one or more main processing cores that are typically either micro controllers or digital signal processors (DSP). The key characteristic, however, is being dedicated to handle a particular task, which may require very powerful processors [3]. For example, air traffic control systems may usefully be viewed as embedded, even though they involve mainframe computers and dedicated regional and national networks between airports and radar sites. (Each radar probably includes one or more embedded systems of its own).

Aim:

The project is to develop a smart street lightening system based on the intensity of the traffic and also monitoring the environment to control the air pollution. By calculating the number of vehicles, we will come to know in which side the density is and the brightness of the street lights are adjusted according to that traffic density. Arduino UNO is used as a microcontroller which provides the signal timing based on the traffic density. The temperature and the humidity level of the air are monitored periodically for the environmental sustainability [4]. The data are stored in cloud which are accessible through the web [5].

Motivation:

Today's modern world people preferred to live the sophisticated life with all facilities. The science and technological developments are growing rapidly to meet the above requirements. With advanced innovations, Internet of Things (IoT) plays a major role to automate different areas like health monitoring, traffic management, agricultural irrigation, street lights, class rooms, etc., Currently we use manual system to operate the street lights, this leads to the enormous energy waste in all over the world and it should be changed[5]. In this survey we studied about, how IoT

is used to develop the street lights in the smart way for our modern era. It is an important fact to solve the energy crises and also to develop the street lights to the entire world. In addition with the study on smart street lighting systems we analyzed and described different sensors and components which are used in IoT environment [6]. All the components of this survey are frequently used and very modest but effective to make the unswerving intelligence systems.

2. LITERATURE SURVEY:

To design and build a small Fire Fighting robot, where a robot will be put in a house model where a light candle is available and the robot should be able to detect, and extinguish the candle in the shortest time while navigating through the house and avoiding any obstacles in the robot's path [7]. Researches were done in the beginning of the project to get more information about robotics in general and to think about the design, hardware components, and the software technique which will control the robot. This robot contains Light Sensor, 2 DC motors, and Buzzer is used in the robot's body [8]. Two DC series motors are used to control the rear wheels and the single front wheel is free. The software part of the project is the program code written in the micro- controller to control the Fire Fighting Wireless Controlled robot using 8051.Detecting the fire and extinguishing it is a dangerous job and that puts lives of fire fighters at risk [9]. There are number of fire accidents in which fire fighter had to lose their lives in the line of duty each year throughout the world. Increase in the number fire accidents are due to expanding human population and growing industrialization. The physical limitations of humans to deal with these kinds of destructive fires make fire extinguishing a complicated task [10]. The use of firefighting robots can reduce the errors and the limitations that are faced by human fire fighters. This paper contains various methods for implementation of firefighting robots. Here we compare various design and construction of building a firefighting robot. When we the field of firefighting has long been a dangerous one, and there have been numerous and devastating losses because of a lack in technological advancement. Additionally, the current methods applied in firefighting are inadequate and inefficient relying heavily on humans who are prone to error, no matter how extensively they have been trained [11]. A recent trend that has become popular is to use robots instead of humans to handle fire hazards.

This is mainly because they can be used in situations that are too dangerous for any individual to involve themselves in. In our project, we develop a robot that is able to locate and extinguish fire in a given environment [12]. The robot navigates the area and avoids any obstacles it faces in its excursion. Hear about robots, we think of science fiction novels and sci-fi movies. It is due to the fact that we do not know how to create robots of high intelligence.

3. PROPOSED SYSTEM:

Street Light Monitoring & control is an automated system designed to increase the efficiency and accuracy of an enterprise by automatically timed controlled switching of street lights. This project represents a new cost-effective solution for street light control systems [13]. The control system consists of control circuitry, internet and electrical devices. The system also includes the client-server mechanism where a user can directly interact with the web-based application to monitor the Streetlight of any place from a single position [14]. The base server will run a Java Web Application which will maintain whole street light of Country/State/City. When we have to switch ON/OFF any streetlight, the server will send a notification to that Street controller to take necessary action. Street light controller will receive that information, and it will decode and find the particular streetlight which will set using relay circuit, the notification came it will then decode and finds the appropriate streetlight which needs to put ON/OFF using relay circuit. The entire street light lamps are connected to relay driver circuit. The base server will run a Java application which will maintain Whole Street light record of the city. When we want to ON/OFF any particular streetlight, Notification message is send to adjust the pattern.

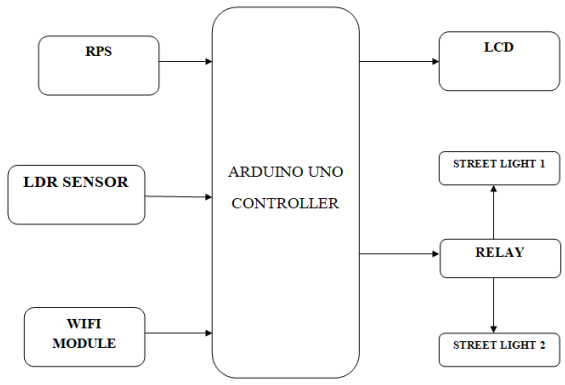

Fig. Block diagram

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4. RESULTS EXPLANATION

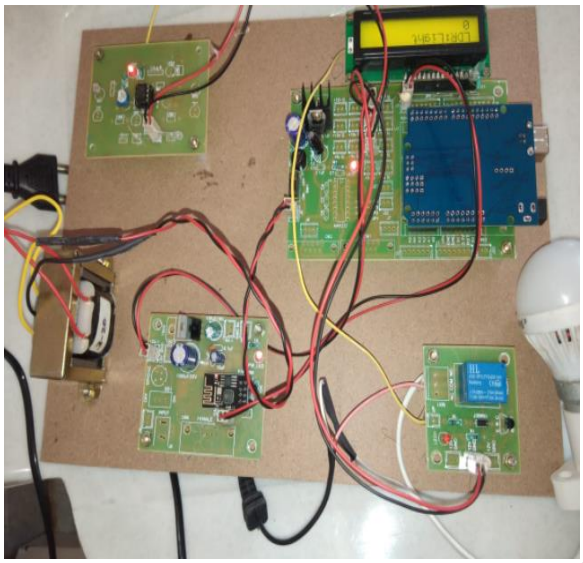

Fig.4.1. Hardware module

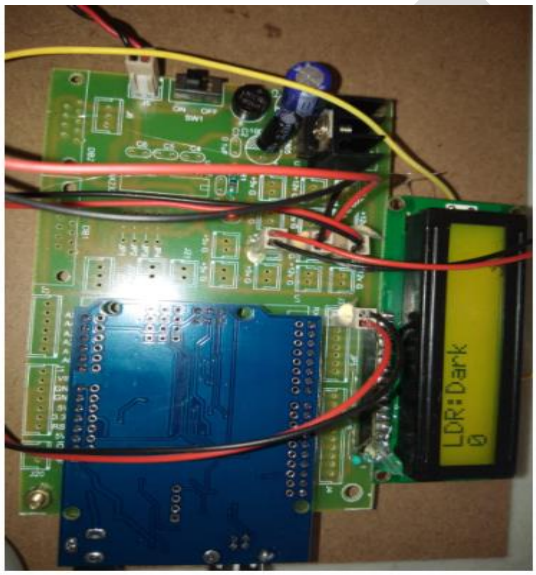

Fig.4.2.LDR on condition

Fig.4.3. OUTPUT results

5. CONCLUSION:

In this survey, we analyze that IoT has groomed rabidly with our day to day life. Smart Street light System is one of the major parts which use IoT concepts. Smart Street Lighting System clearly tackles the major problems like Energy wastage, Crime detection, disposal of incandescent lamps, maintenance cost etc., This system ensures traffic safety and the security to the people which can stop from women annoyance, burglaries and further intimidations. The Energy crises occur in the cities may be reduced because 50 to 60 percent of electricity is saved and these energies were used in other important purposes. This system is entirely adaptable to the requirements of users and creates safe environment. This approach requires minimum hardware with simple software. To control street light decisions were taken by the system; it is possible to avoid negligence factors by human operatives. It will also helpful in making our city as the Smart City.

References

[1] Rajalakshmi. P, Mrs. S. Devi Mahalakshmi "IOT Based Crop-Field Monitoring And Irrigation Automation" 10th International conference on Intelligent systems and control (ISCO), 7-8 Jan 2016 published in IEEE Xplore Nov 2016.

[2] Prof. K. A. Patil And Prof N. R. Kale proposes "A Model For Smart Agriculture Using IOT" 2016 International Conference on Global Trends in signal Processing, Information Computing And Communication.

[3] Rajesh Tiwari et. al., "An Artificial Intelligence-Based Reactive Health Care System for Emotion Detections", Computational Intelligence and Neuroscience, Volume 2022, Article ID 8787023, https://doi.org/10.1155/2022/8787023.

[4] Suriya Begum, Farooq Ahmed Siddique, Rajesh Tiwari, "A Study for Predicting Heart Disease using Machine Learning", Turkish Journal of Computer and Mathematics Education, Vol. 12, Issue 10, 2021, pp 4584-4592, e-ISSN: 1309-4653.

[5] Jaspal Bagga, Latika Pinjarkar, Sumit Srivastava, Omprakash Dewangan, Rajesh Tiwari, "Latest Advancement in Automotive Embedded System Using IoT Computerization", Green Computing and Its Applications by Nova Publishers 2021, ISBN: 978-1-68507-357-2, pp 131 - 165. ,DOI: https://doi.org/10.52305/ENYH6923.

[6] Rajesh Tiwari, Deevesh Chaudhary, Tarun Dhar Diwan, Prakash Chandra Sharma, "Privacy and Security Solution in Wireless Sensor Network for IoT in Healthcare System", Next Generation Healthcare Systems Using Soft Computing Techniques, by CRC Boca Raton, FL 33487, U.S.A 2022, ISBN: 978-1-03210-797-4,pp 123 – 135, DOI: https://doi.org/10.1201/9781003217091-9.

[7] Dr.N.Suma, Sandra Rhea Samson, S. Saranya, G. Shanmugapriya, R. Subhashri „IOT Based Smart Agriculture Monitoring System" 2017 International Journal on Recent and Innovation Trends in Computing and Communication.

[8] Mahammad shareef Mekala, Dr.P.Viswanathan „A Survey: Smart agriculture IoT with cloud Computing " 978-1-5386-1716-8/17/$31.00 ©2017 IEEE

[9] Prathibha S R1, Anupama Hongal 2, Jyothi M P3" IOT BASED MONITORING SYSTEM IN SMART AGRICULTURE" 2017 International Conference on Recent Advances in Electronics and Communication Technology

[10] Rajesh Tiwari, Manisha Sharma and Kamal K. Mehta "IoT based Parallel Framework for Measurement of Heat Distribution in Metallic Sheets", Solid State Technology, Vol. 63, Issue 06, 2020, pp 7294 – 7302, ISSN: 0038-111X.

[11] P. M. Awantika and Rajesh Tiwari, "A Novel Based AI approach for Real Time Driver Drowsiness Identification System using Viola Jones Algorithm in MATLAB platform", Solid State Technology, Vol. 63, Issue 05, 2020, pp 3293 – 3303, ISSN: 0038-111X.

[12] Rajesh Tiwari, Manisha Sharma, Kamal K. Mehta and Mohan Awasthy, "Dynamic Load Distribution to Improve Speedup of Multi-core System using MPI with Virtualization", International Journal of Advanced Science and Technology, Vol. 29, Issue 12s, 2020, pp 931 – 940, ISSN: 2005 – 4238.

[13] Ibrahim Mat, Mohamed Rawidean Mohd Kassim, Ahmad Nizar Harun, Ismail Mat Yusoff "IOT in Precision Agriculture Applications Using Wireless Moisture Sensor Network" 2016 IEEE Conference on Open Systems (ICOS), October 10-12- 2016, Langkaw, Malaysia.

[14] Zhaochan Li, JinlongWang, Russell Higgs, LiZhou WenbinYuan4 "Design of an Intelligent Management System for Agricultural Green houses based on the Internet of Things" IEEE International Conference on Embedded and Ubiquitous Computing (EUC) 2017.