Road Accident Surveillance With Automatic Street Light Control System Using IOT

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Abstract: The most common reason for accident during nights especially in villages and rural-urban areas, because of failure in street lights. This project provides remedy to this problem. The main aim of the project is to reduce and detect the accidents on roads during nights. This system includes different components like PIR sensor, LDR sensor, NodeMCU (ESP8266) and the status of streetlights monitored in cloud. Whenever accidents occur on roads, 3axis memss- acceleremeter335 sensor detects accidents due to tilts and a signal gets received by NodeMCU and sends to cloud. Through cloud this information sends to nearby hospitals and ambulance

Keywords: AurdinoNano, NodeMCU (ESP8266), PIRsensors, 3-axisMEMS Accelerometer (ADXL335), Internet of Things (IOT).

1. INTRODUCTION

The proposed project is an innovative approach for road accidents surveillance with automatic street light control system with optimized management and efficiency. Wireless communication uses wireless devices which allow more efficient accident monitoring with street light system management, with an advanced interface and control architecture [1] [2]. It uses many sensors to control and guarantee the optimal system parameters, the information is transferred point-by point using MIT append receivers and is sent to a control terminal used to check the status of the street lights and road accidents to take appropriate measures in case of failure. The system allows substantial energy savings with increased performance and maintainability[3] [4]. The controlling device of the whole system is an aurdino, Node MCUs, LDR sensors, PIR sensor, ADXl335 sensor are interfaced to Aurdino. In achieving the task aurdino is loaded with a program written using Embedded 'C' language [5].

The main objectives of the project are

i)   The system design provides an efficient automated monitoring system for road accidents and street lights.

ii)   The network is made to transfer data from the lampposts to the central station

2. DESIGN PROCESS

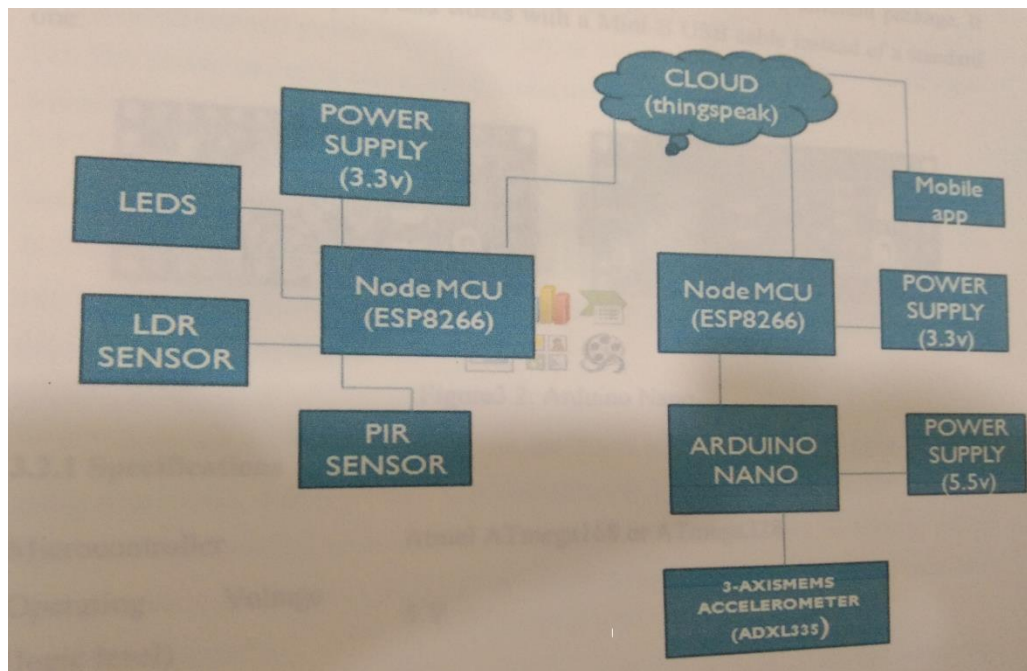In this project the block diagram and design aspects of independent modules are considered.

Figure 1: Block diagram of "Road accident surveillance with automatic

Street light control system"

The main blocks of this project are

i) Ardino Nano is a small, complete, and bread board friendly board based on the ATmega328. It has more or less the same functionality of the arduino dueilanove, but in a different package. It lacks only a DC power jack, and works with a Mini-B USB cable instead of a standard one.

ii) A Light Dependent Resistor or a photo resistor is a device whose resistivity is a function of the incident electromagnetic radiation. Hence, they are lightly sensitive devices. They are also called as photo conductors, photo conductive cells or simply photocells. They are made up of semiconductor materials having resistances. Alight dependent resistor works on the principle of photo conductive.

iii) PIR (Passive Infrared Sensor). It is a motion sensor. It senses the human bodies, animals and other objects and it has some specifications for human bodies, animals, and other objects. It has Fresnel lens, capacitive elements. It is a digital device and has 0.6% sensitivity. It looks in the form of dome shape to reflect in 110degrees. When it senses the human presence 1 on the screen and 0 if there is no presence.

iv) Node MCU is an open source IOT platform. It includes firmware which runs on the ESP8266 Wi-Fi Soc from Espressif Systems, and hardware which is based on the ESp-12 module. The term "Node MCU "by default refers to the firmware rather than the Dev kits. The firmware uses the Lua scripting language .It is based on the eLua project, and built on the Esppressif Non –Os SDK for ESP8266. It uses many open sources projects , such as lua-cjson, and spiffs

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3. PROPOSED METHOD

This proposed work will provide vital information about the accidents even in unpopulated area. So, the pre-configured contacts could be able to serve to the victims with better efficiency and they could plan to **Results:**

have important first aid kits which have to bring along with them to accident spot. Thus this work ensures the reduction of death ratio and fatalities in the country like India and also which will have a greater importance in day to day life.
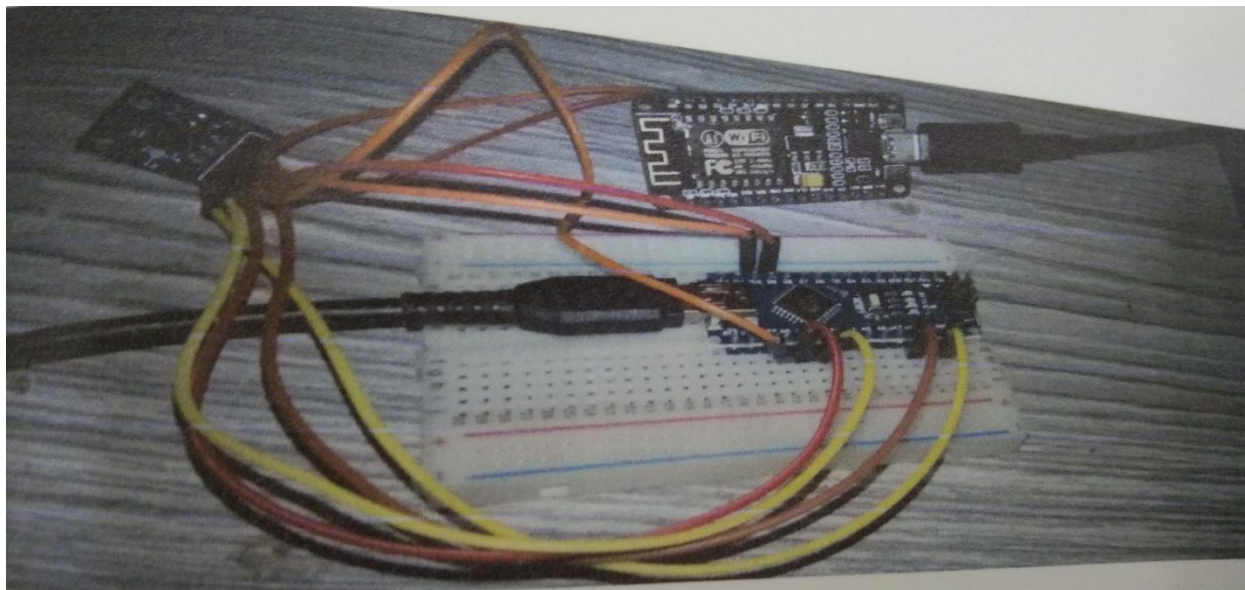

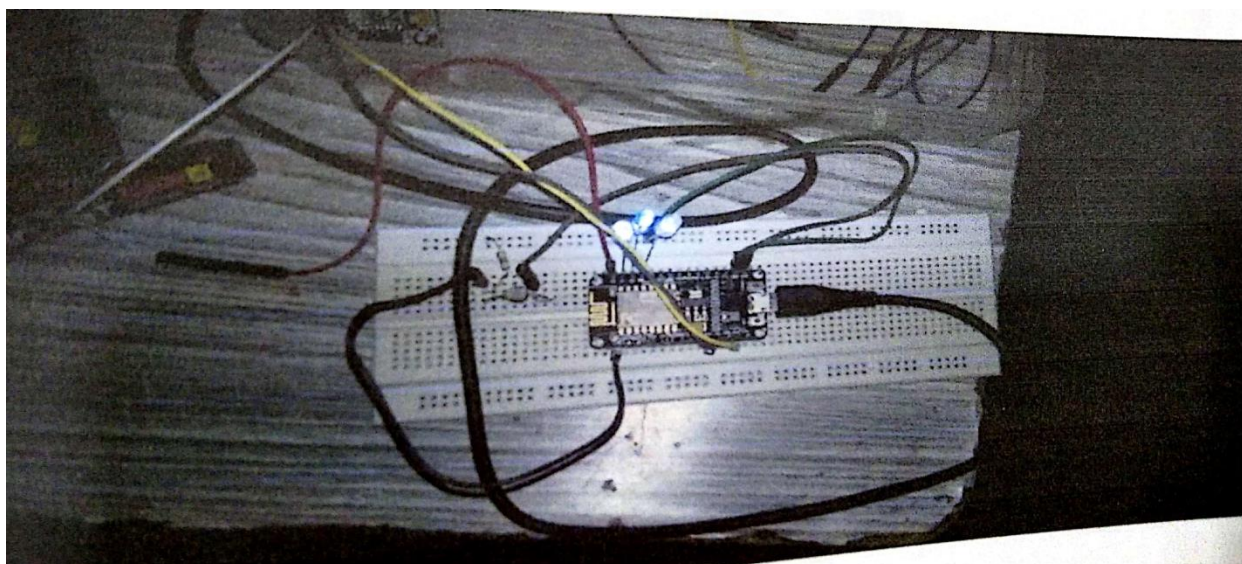**Figure 3.1: Accident monitoring system**

OUTPUT:

Figure 3.2: Street monitoring system

4. CONCLUSION

Based on the self-designed wireless sensor, we established the wireless sensor network to monitor street lighting system to reduce accidents and accidents detection. This describes that integrates new technologies, offering ease of maintenance, energy savings, reduce death rate of people. Street light system is obtained by using the highly economical LED technology supplied by renewable energy provided by the solar panels using the intelligent management of the lampposts. Accident detection is obtained by using 3-Axismems Accelerometer (ADXL335) sensor.

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