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IOT BASED SMART CITY

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ABSTRACT

As we know there is many problems in city, in which the major problems are pollution, waste management & loss of electricity. To bring it under control its monitoring is majorly recommended, to overcome this issues. This paper discusses the way of solving above three problems. In this proposed system IR sensor is used for detection and monitoring and the result is displayed on webpage. This system provides easy and comfort life to common man.

Keywords: LCD, ATmega16A, MQ135, IR Sensor, ESP8266

I.INTRODUCTION

The aim of the project is to support standardization processes which help to promote the sustainable development of cities and communities and to involve the main stakeholders and actors in these processes. Smart City is a city that uses smart solutions to provide a clean and sustainable environment to convert the life of a common man into a quality life. A Smart City ensures safety, security and electricity supply, efficient public transport system, proper sanitation and solid waste management. In a Smart City, digital technologies help in getting optimum resource usage, better public services while maintaining sustainable development.

In this project we developing a city in three categories as Smart energy saver street light, Air and sound pollution monitoring and Waste management.

In which first is a well-designed, energy-efficient street lighting system should permit users to travel at night with good visibility, in safety and comfort. These expensive saving can also enable government system to spread street lighting to additional areas.

As well as the pollution of air and sound is increasing abruptly. To bring it under control its monitoring is majorly recommended. To solve this problem, we are introducing a system through which the level of sound and the existence of the dangerous gases in the environment can be detected.

Also many times we see that the Dustbin are placed at public places in the cities are overflowing due to increase in the waste every day. It creates damp condition for the human being and creates bad smell around the environment this leads in spreading some deadly diseases & human illness, to Avoid such a situation we are planning to design “IOT Based Waste Management for Smart Cities”.

II.PRESENT SCENARIO

At night, a few vehicals are travelling on the road and the brightness of the streetlight is full, because of this there is loss of electric power.

The increasing pollution at such alarming rate has started creating trouble for the living beings, may it be high decibels or toxic gases present in the environment leaves a harmful effect on human's health and thus needs a special attention.

As we seen in the cities the dustbins are overflowing due to increase in the waste everyday. It creates insanitary condition for the people and creates worst smell around the surrounding this leads in spreading some deadly diseases and human illness.

III.BLOCK DIAGRAM

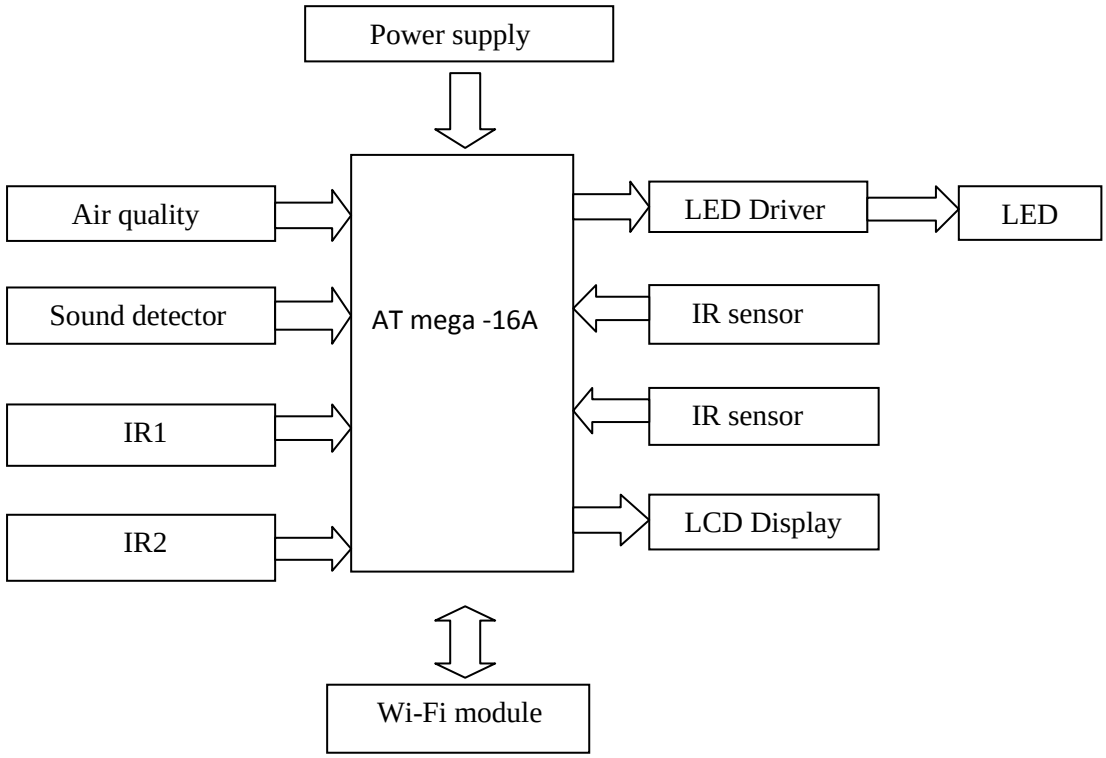


Fig : Block diagram of IOT based Smart City

The AT mega-16 is a High-performance, Low-power Atmel AVR 8-bit Microcontroller. It having Advanced RISC Architecture . The air quality sensor used to check the quality of air. Then the sound sensor can detect the sound strength of environment. IR sensor – single is general purpose proximity sensor. In many studies on the use of LED lighting have been conducted in terms of the benefits of LED lighting and traffic safety. All these sensor's is given to the ATmega-16A microcontroller and the result is display on the web page with the help of wifi module.

ATmega16A:

The ATmega16A is a low-power CMOS 8-bit microcontroller based on the Atmel AVR enhanced RISC architecture. It achieves throughputs approaching 1MBPS per MHz permit the system designer to optimize power usage versus processing speed. It have 16KBytes of In-System Self-prog rammable Flash program memory and 512Bytes EEPROM. Operating Voltages 2.7 - 5.5V.

IR SENSOR:

The power consumption of this module is low. It gives a digital Output. It used for detection of obstacle. Its operating range from 4.5V-5.5V.

ESP 8266:

It carry highly integrated Wi-Fi SOC solution. It provides compact design and safe performance in the internet of things world. Its operating voltage is 2.5V-3.6V. It uses external SPI flash to store user programs, and support up to 16MB memory capacity theoretically.

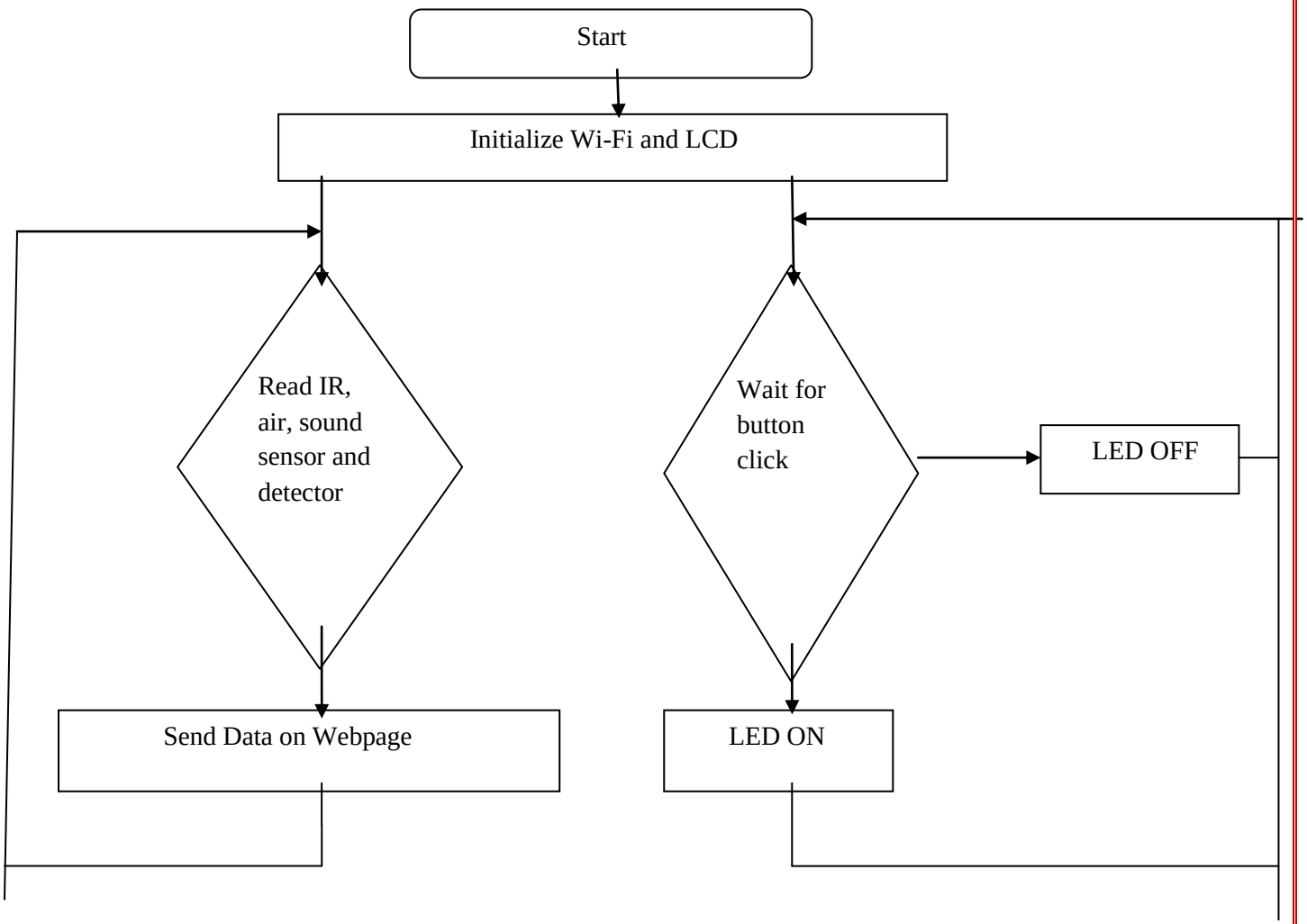
MQ135:

It provide high sensitivity, Stability and long life Simple drive circuit. They are used for detecting of NH3,NOx, alcohol, Benzene, smoke,CO2 ,etc.

SOUND SENSOR:

Sound sensor can detect the sound strength of the environment. Easy to use sound sensor module provides analog output signal. Its operating voltage range from 4V-12V, and its frequency range 16-20Khz.

FLOW CHART:



IV.CONCLUSION

The Smart city mission will drive economic growth and improve the quality of life of people and enable development of local areas. It will help connect technology which will lead to smart outcomes.

In the Smart Energy Saver Street light is a cost effective, practical, ecofriendly and the safest way to save energy and this system the light status information can be accessed from anytime and anywhere. It clearly outfit the two problems that world is facing today, saving of energy and also management of incandescent lamps very efficiently.

The Automatic Air & Sound management system is a step forward to provide a answer to the biggest threat. It supports the new technology and effectively supports the healthy life concept. This system has features for the common man to monitor the aggregate of pollution on their mobile phones using the application.

We have implemented real time waste management systems by using smart dust bins to check the fill level. In major cities the garbage collection vehicles visit the areas everyday two or three times depends on the population of the particular area and sometimes these dust bins may not be full. Our system will inform the status of each and every dust bins in real time**.**

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