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IOT Based Smart City Management

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Abstract: ***In the present field technologies like automation, power consumption, and cost-effectiveness should be mainly considered. To reduce manpower with the help of intelligent systems automation was intended. The utilization of inexhaustible wellsprings of energy is significant in light of the fact that wellsprings of energy are restricted though energy utilization has increments. By utilizing the renewable power, it can encourage the high power demand. The main aim of this project is to describe a method of modifying the street light and smart irrigation system controller. The massive deployment of the internet of things is allowing Smart city projects and initiatives all over the world. The IoT is a modular approach to merge various sensors with all ICT solutions. With over 50 billion objects will be connected and deployed in smart cities operation is the IoT communications. IoT is designed to support the Smart city concept, which aims at utilizing the most advanced communication technologies to promote services administration of the city and the citizens. Blynk android app is used to display the sensor readings.***

Keywords: Smart Irrigation, Sensors, Lights, IoT, Blynk app

I. INTRODUCTION

Our city is so simple and the usage of automated technology is very less. So that's why the people are facing more problems like water supply, road side light (street light), accidents, traffic, garbage etc., to overcome this problem we try to developed the Smart City.A smart city (aren't just concept of dream of the future.) is a municipality that use information and commutations technology (ICT) efficiently. To increase operational efficiency, share information with the public and improve both the quality of government services and citizen welfare. A smart city is an urban area that uses different types of electronic internet of things (IOT) sensors to collect data to manage assets, resources and services. The IoT allows things to be sensed or controlled remotely. Resulting in improved efficiency. Accuracy and economic benefit in addition to reduced human intervention. According to a survey by a global networking solution company, the number of things using IoT technology will increase to 50.1 billion devices by the year 2020.

The project aim is the movement of vehicles to detect street light and on/off the light is also detect the moisture of soil and provide the water and using the sensor accident location is sent to the hospital and hospital immediately to provide help to that person. In addition to the city's use of the small solar panels, LED, sensors, we are interested in evaluating the model to prevent and manage the local threats. In initiation of the concept of smart cities, a set of objectives has been set to boost the cities that provide core infrastructure and give a suitable quality of life to its citizens, a clean and sustainable environment and application of „Smart" Solutions. To improve efficiency of public utility in transportation, communication, water/gas/electricity supply and subsequently realize modern lifestyle for the citizens. To improve safety and security in the living environment by utilizing technological innovations which subsequently adds to the inclusive growth prospects of these cities as well as smartness of the cities. Utilizing information technology to its best to habilitate the migrant population with e-management systems being the major backbone of infrastructure.

II. LITERATURE SURVEY

Improvement of a framework which can screen temperature, mugginess, dampness and even the development of animals which may crush the yields in agrarian field through sensors utilizing Arduino board and if there should be an occurrence of any disparity send a SMS warning just as a notice on the application created for the equivalent to the rancher's cell phone utilizing Wi-Fi/3G/4G. The framework has a duplex correspondence connection dependent on a cell Internet interface that takes into consideration information review and water system planning to be modified through an android application. In light of its energy independence and ease, the framework can possibly be helpful in water restricted topographically secluded areas.

The mechanized water system framework created demonstrates that the utilization of water can be lessened for a given measure of new biomass production. The utilization of solar power in this water system framework is relevant and essentially significant for natural harvests and other agrarian items that are topographically disengaged. The Internet interface permits the oversight through versatile media transmission gadgets, for example, a Smartphone. The programmed water system and framework that has been actualized at moderately minimal effort. In this venture ZIGBEE network is utilized. The recreation is finished with the help of Keil

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C µ vision programming. In this framework, ZIGBEE conventions replace the wired water system framework. This framework ends up being a constant input control framework which screens and controls all the exercises of the water system framework effectively. Inserted System Design for Irrigating Field with Different Yields Using Soil Moisture Sensor be utilized to actualize proficient water system plot for the field having extraordinary crops. The framework can be additionally improved by utilizing fluffy rationale regulators. The fluffy rationale conspire is utilized to increment the precision of the deliberate worth and aids choice making. The Programmable Irrigation Control System Using Li-Fi created demonstrates that it has minimal effort. Moreover other applications, for example, temperature checking in fertilizer creation can be effortlessly executed. The LI-FI correspondence and Internet association permits the information assessment progressively on a site.

III. SYSTEM DESIGN

The system is designed to monitor the status of the plants and provide required amount of water to the plant .Also this system includes counting of vehicles passing. For vehicle counting we are using IR sensor and LED, which will be there to display the status. Soil Moisture sensors are used to monitor the water level in soil and separate water pumps if needed. Temperature sensors are used to monitor environment temperature. All these Parameters are updated on the IoT platform. Android application will be used to get the current Status of the system. When the vehicle arrives, the lights will be turned on through a relay. Count of vehicles will be displayed on the LED and Android app also.

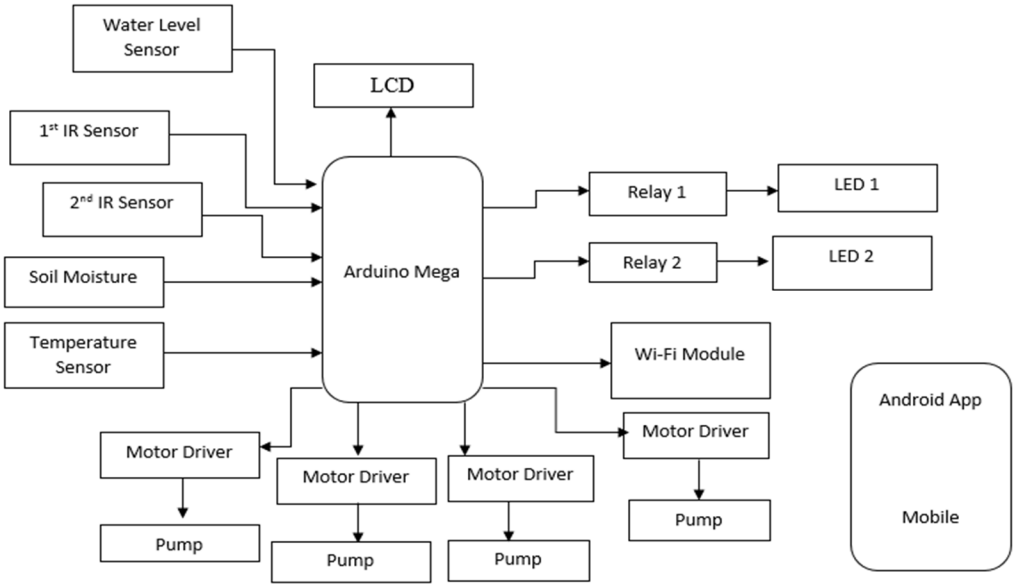

Fig: - System Architecture

DC pumps are operated using motor drivers module. The motor driver module used is L293D which can operate these pumps. Wi-Fi module ESP8266 used to provide connectivity to the android system. Level Sensor are used to check the level of water in tank

IV. RESULT AND EXPERIMENTAL

The concept is to design and monitor the plants and street light saving. Arduino Mega is used as the main controller to control the system. It's been programmed through Arduino IDE. The language used for programming Arduino is embedded C. The various sensor used are keypad, IR, Soil, DC pump, L239D are used. The main security provided in the following system is its password based. Without password the system won't start or work. Various sensor have been used in the following system, as soon as the system is turned on it gets all sensor initialized. Soil sensor check the value of the present soil in the plant, if the soil value is greater than the threshold value the system turns DC pump ON and watering to plants starts. It also checks the water tank level, before it's dry on the motor so the tank remains full. IR sensor is been used for detecting vehicle ,depends on the vehicle the intensity of light is adjusted .as soon as it passes through one pole its intensity is decreased where next pole light intensity is been increased. The main motive of the proposed system is to save energy and water. Blynk app is used which displays all the parameters retrieved from the microcontroller.

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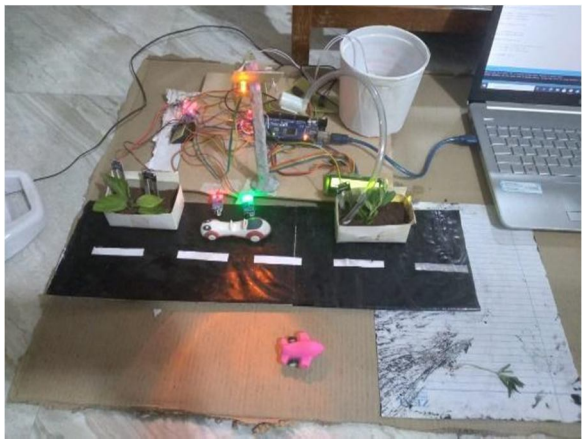

Fig 5.1 : - Overview of Proposed System

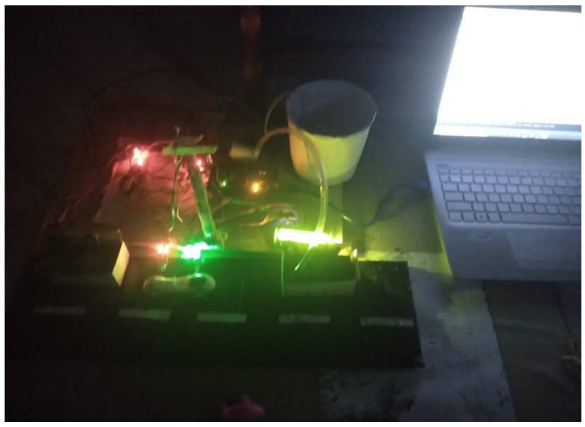

Fig 5.2: - Overview of Proposed System

Fig 5.3: - Blynk App Readings

V. CONCLUSION

A smart irrigation system that optimizes water usage is developed. This system guarantees the longevity of irrigation pumps; prevents water wastage through water recycling and prioritizes pump operations based on the level of water in the reservoir. This way, it ensures that different plants are irrigated in relation to their varying water needs for effective growth. It would be useful in places where water scarcity is a challenge to the practice of irrigation.

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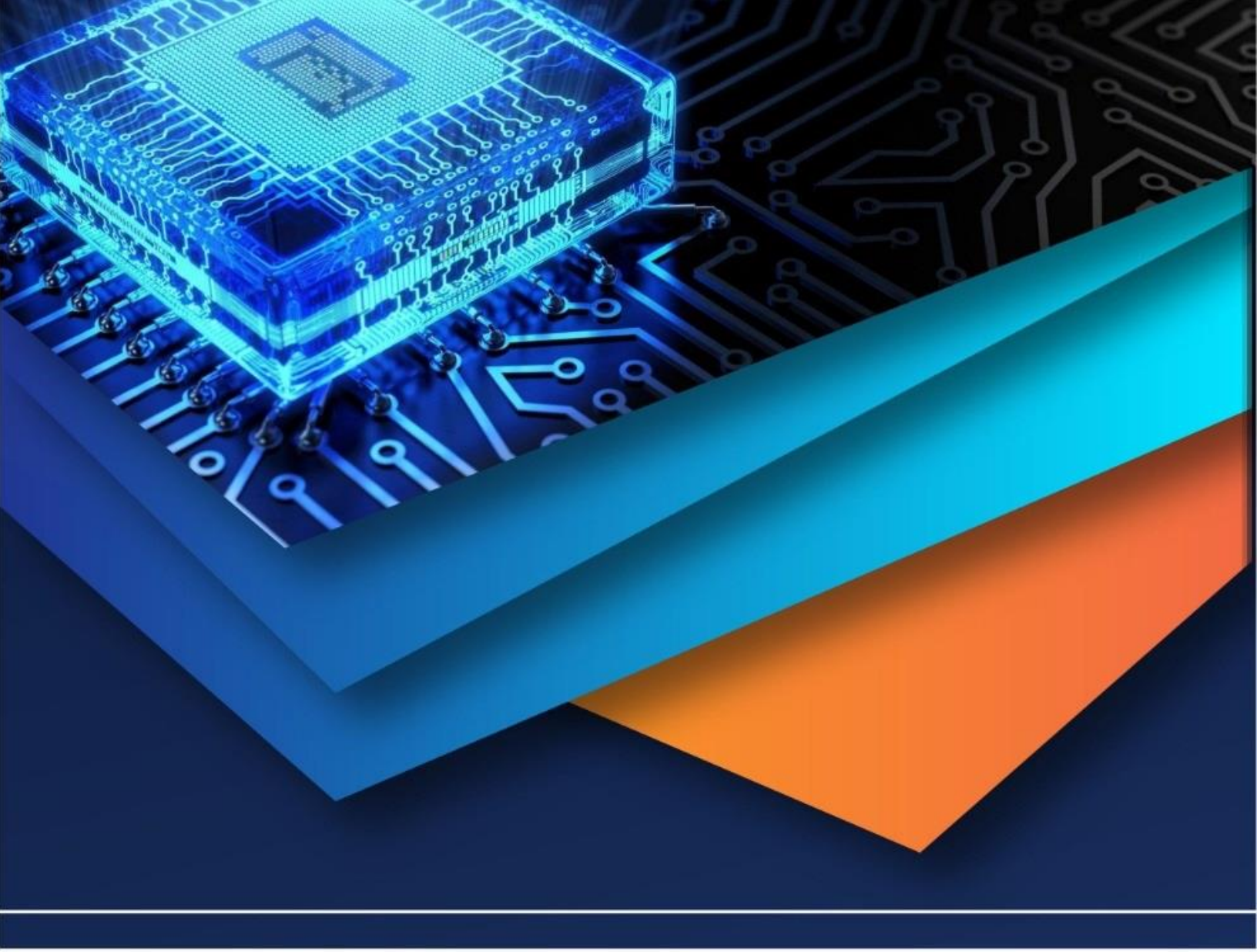

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