Infrastructure of Smart Cities based on IOT

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Abstract - **The heart of smart cities operations is the IoT communications. IoT is designed to support Smart City concept, which aims at utilizing the most advanced communication technologies to promote services for the administration of the city and the citizens. This paper was representing review concept of smart cities and there different application which is benifical for beings a city to be smart.**

Index Terms - **Servo motors , Jumper wire ,Sensors , Display board , Arduino, Motor Driver, Piezo, LCD, Potentiometer.**

1.INTRODUCTION

More than 60 % of world population is now urbanized. Complexity of social ecosystem in cities area has increased making livable a major factor. High-rate development, climate inequality and vast contamination growth. These factors impede the growth and cities becomes unorganized and mess. These problems trap the growth of city and dis mete it totally. This is trip the usages of Technology as a solution of all issues and to introduce them in a smarter way. Hence concept of "Smart City". Smart cities ensure livable environment with the help of Internet of Things, Artificial Intelligence and Big Data. By "SMART" that the cities are more livable, comfortable and clean. We have identified critical factor that the pillar for make a city smart city. Internet of Things enhance a city smartness. A new way in governing the cities is by utilizing technology in the concept of smart city. My research paper based on the how make a city smart use of Internet of things.

2 PROBLEM STATEMENT

As city populations increase and urban sprawl proliferates, issues with economic and social growth are often magnified. These problems not only affected a city's quality of life, but also put to add stressfully environment the traditional infrastructure increasing the need for new technology and resource conservation. Smart city technology can provide city government with a large infrastructure that helps them endure and outcome these problems in the future. Each new technology brings with it an immense pool of the new possibilities

3 DESCRIPTION ABOUT IOT DEVICES

IoT devices are pieces of hardware, such as sensors, actuators, gadgets, appliances, or machines, that are programmed for certain applications and can transmit data over the internet or other networks. Connected devices are part of an ecosystem in which every device talks to other related devices in an environment to automate home and industry tasks. They can communicate usable sensor data to users, businesses and other intended parties.

4 COMPONENT USED

- Arduino Uno3, Servo motors, IR Sensor, TCRT5000, LED, LCD.
- LDR, PIR Sensor, Relay.
- Buzzer, 4H0.3 AH Battery, MQ5 Gas Sensor, Smoke Sensor.

5 PROPOSED WORK

5.1 Smart Home Automation
This module demonstrate application of automatic lighting were human interaction is very less all work will done automatically and 2 physical quantities are controlled which are human motion and intensity of light. In that when a human can enter the room the sensor will sense and the light was automatically ON and when the human will go outside the light will be automatically OFF.
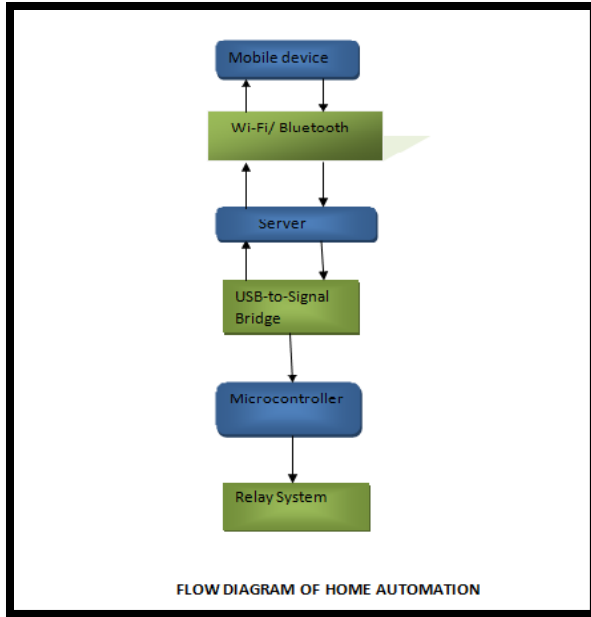EQUIPMENT USED: -LDR, PIR Sensor, Relay, Arduino Uno3.

FLOW DIAGRAM OF HOME AUTOMATION

FIG 1.1
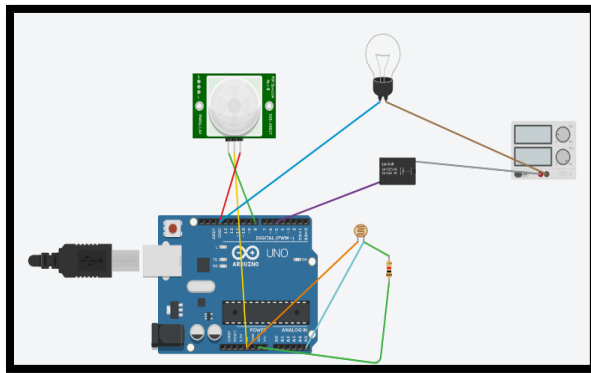

FIG 1.2 CIRCUIT DIAGRAM OF HOME AUTOMATION

5.2 Smart Parking

This module demonstrates application of automatic parking were there is no any human interaction means human interaction is minor. And work will automatically be done with the help of sensors and other equipment. The main purpose of this module to reduce the time to locate the parking areas, hence, to reduces fuel consumption. The working of this module is that when any vehicles are come for parking, and he/she will saw on the display board parking will full or empty the sensor will give command and that command will be displayed on the board. By that smart way we are consume our time.

EQUIPMENT USED: - Arduino Uno3, Servo motors, IR Sensor, TCRT5000, LED, LCD
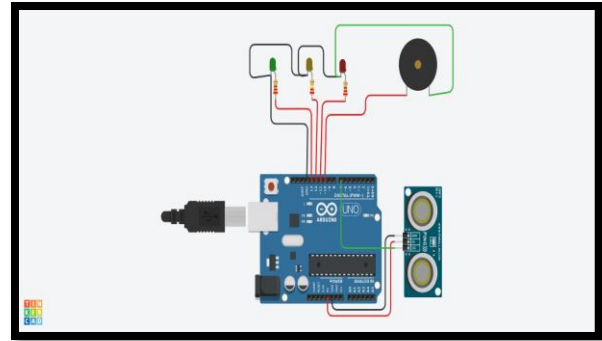

FIG 1.3 CIRCUIT DIGRAM OF SMART PARKING

5.3 Smart Water Monitoring System

In this module we are going to measure and monitor various water quality parameters such as PH value, soli moisture and temperature. In this sensors informs about the water level task and communicate to the monitor section. This system protect the water with a real time system in order to make active measurement.

EQUIPMENT USED: - PH Sensor , Flow Sensors

5.4 Smoke Detector Alarm

This module is very necessary in smart cities this will be protect our home and cities very well. So in this module smoke detector can sense the presence of smoke when smoke is detect the buzzer will be sound automatically. Domestic smoke detector range from individual battery powered units to several interlinked units with battery backups

EQUPMENT USED: - Buzzer, 4H0.3 AH Battery , MQ5 Gas Sensor, Smoke Sensor .
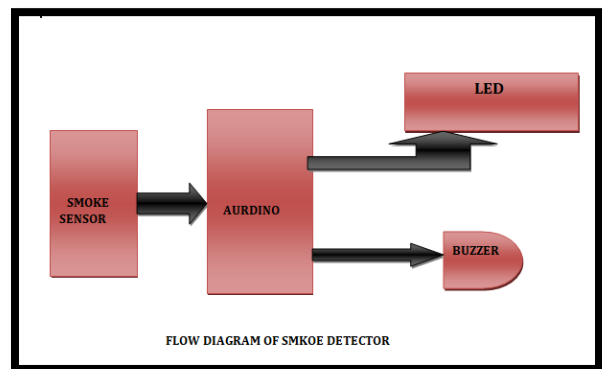

FLOW DIAGRAM OF SMKOE DETECTOR

FIG 1.4

In fig. 1.4 flow diagram of smoke detector shows that when a smoke sensor will sense any type of smoke then with the help of aurdino the smoke sensor will active and then automatically led is on and buzzer will make the sound.

5.5 Smart Water Harvesting

In this module of the project we need to constructing a harvesting system which is collection of devices and delivery system. Sometime rain fall can be exceed and dram can be overflow. This module will developed one of uno for this project ultra-sonic sensor and water sensor has been connected along with the uno micro controller. The rain water has been drizzle on the water sensor a door attached to big pit will be append and the ultra-sensor and water level sensor which compute the level store in the pit as a information and all information generated by a sensor

6 FUTURE WORK

The work will continue by doing research work, publishing papers on smart cities. Smart cities offer better use of place, less traffic clean air and more efficient civic services, all of which increase the quality of living life. Smart cities provide more career and economic opportunities as well as stronger links with community. "Smart cities" is the urban center of the future, made safe secure environmentally green and efficient because all structure whether for power, water supply quality increase, reduce the water wasting in the cities and provide the best transportation and smart parking facilities. We can develop Smart Health Care, Smart Grid System, temperature monitoring system, Smart foods, wireless electric supply, smart water monitoring system etc. By using internet of things concept.

7 GUIDANCE

8 CONCLUSIONS

The main objective of smart cities is to use advance technology, data, and analytic to improve management resources and lives of citizen. Smart cities are mission of the government is a bold, new initiative and provide core infrastructure and gives a decent quality of life's to its citizen, a clean and sustainable environment and application of smart solutions. To provide for aspirations and needs to its citizens.

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