SMART CITY *"Lead a New Green Future"*

Shreya Mishra], Ashish Kumar Yadav², Shiwani Kumari³, Dr. Nandita Pradhan [4], Mr. Amitabh Srivastava [5]

Name of Author	Address	E-mail
Shreya Mishra	United College of Engineering & Management, D-2 UPSIDC Industrial Area, Naini Prayagraj India	shreya.mishra.25898@gmail.com
Ashish Kumar Yadav	United College of Engineering & Management, Prayagraj, India	ashish25121998@gmail.com
Shiwani Kumari	United College of Engineering & Management, Prayagraj, India	shiwanikumari2510@gmail.com
Dr. Nandita Pradhan	United College of Engineering & Management, Prayagraj, India	nanditapradhan123@yahoo.com
Amitabh Srivastava	United College of Engineering & Management, Prayagraj, India	amitabh.electronics@gmail.com

ABSTRACT

A Smart City is an urban area that uses different types of electronic data collection sensors to supply information used to manage assets and resources efficiently. This includes data collected from citizens, devices and assets that is processed and analyzed to monitor and manage traffic and transportation system, power plants, water supply network, waste management, law enforcement, information systems, schools, libraries, hospitals and other community services.

The Smart City concept integrates Information and Communication Technology (ICT) and various physical devices connected to the network to optimize the efficiency of city operations and services and connected to citizens. Smart City technology allows city officials to interact directly with both community and city infrastructure.

Keywords: IoT (Internet of Things), Home Automation, U-Turn, Core infrastructure, decent quality, '**Smart' Solutions.**

INTRODUCTION

This proposed project envisages developing a new green future by providing sense of security and easy way to the public in various manners by using **IoT** in our day-to-day life. With increasing urban population and rapid expansion of areas, operators are looking at smarter ways to manage complexities, increase efficiencies and improve quality of life. This has created need for cities that monitor and integrate infrastructure to better optimize resources while maximizing services to its citizens. [1] The objective of smart city initiative is to promote **sustainable and inclusive cities** that provide **core infrastructure** and give a **decent quality** of life to its citizens, a **clean and sustainable environment** and application of '**Smart' Solutions.** [1]

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provide increased quality of life. With the introduction of the Internet of Things (IoT), the research and implementation of home automation are getting more popular.[2]

Figure1: Home Automation

1.WORK CRITERIA

In this project we are leading our interest in the following areas to provide a better, secure and convenient life style for the citizens:

a. Module 1: Home Automation

Home automation or Smart Homes can be described as introduction of technology within the home environment to provide convenience, comfort, security and energy efficiency to its occupants. Adding intelligence to home environment can
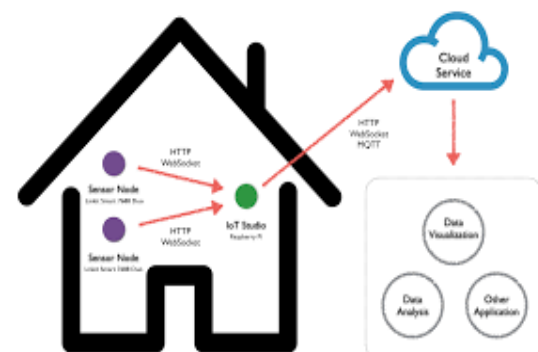
b. Module 2: U-Turns on Road

The U-Turn remains one of the most dangerous driver movements on roads worldwide. Paramedics respond daily to severe trauma from crashes that could have been prevented had it not been for the hasty decision to make a U-turn in traffic. [3]

The consequences of an accident caused by U-turns are often fatal. It is an unexpected movement and usually does not allow time for the faster moving vehicle to change course and avoid an accident.

We are developing a system that aware the person driving towards the U-turn that if someone is coming from the opposite lane, which reduces the chance of accident to a certain extent.
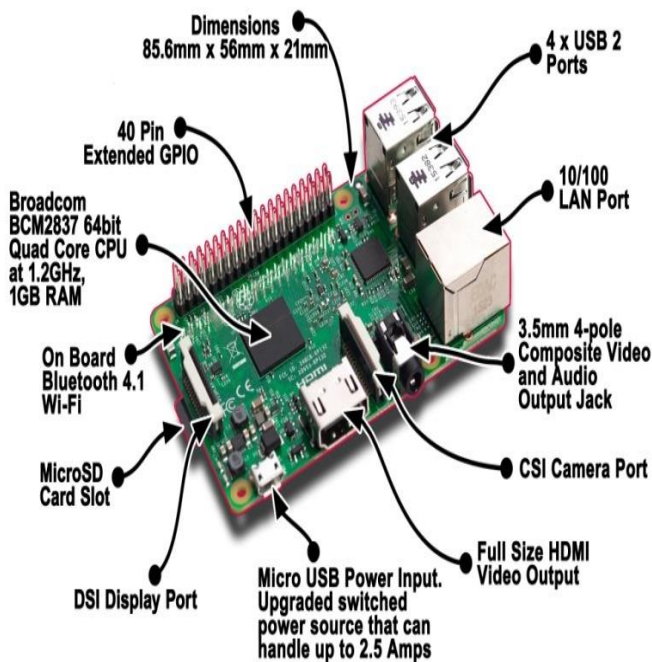
1. HARDWARE USED

a. Raspberry Pi3:

Figure2: RaspberryPi 3

2. COMPONENTS REQUIRED

- IR Sensor
- Temperature Sensor
- Water Level Sensor
- Humidity Sensor
- Ultra-Sonic Sensor
- Buzzer
- 555 Timer
- Relay
- Router
- Pi Camera

3. METHODOLOGY

a. Home Automation:
All the sensors used transmute the signal after receiving to raspberry pi which upload all the data in cloud so that it can
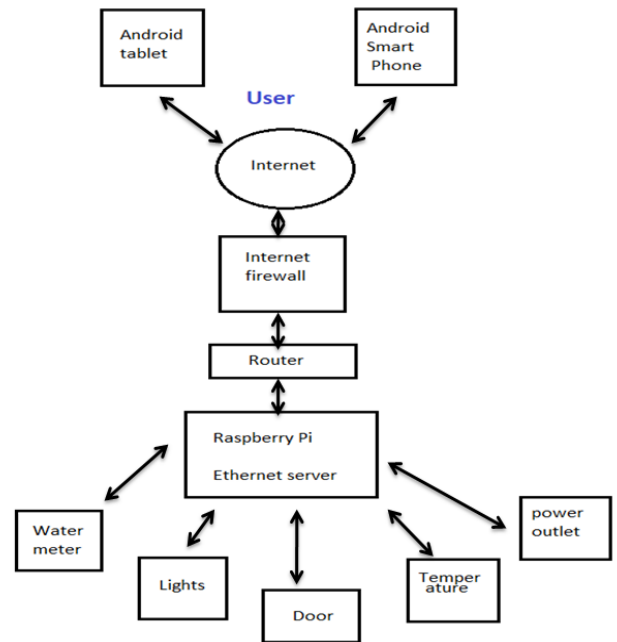
be assessable by user from all around the world via internet and can be controlled through mobile phones. It provides information of people intruding our home through pi cameras installed. [4]

Figure3: Flow Chart for Home Automation

b. U-Turns Security:
We are developing a complete circuit of Infrared in which a vehicle crosses it. There will be break of the circuit of IR sensor and light will glow with a sound of buzzer that is situated in the front end of the opposite lane if there is another vehicle on the U-turn, they will get a sign and have sufficient time to respond.[3]
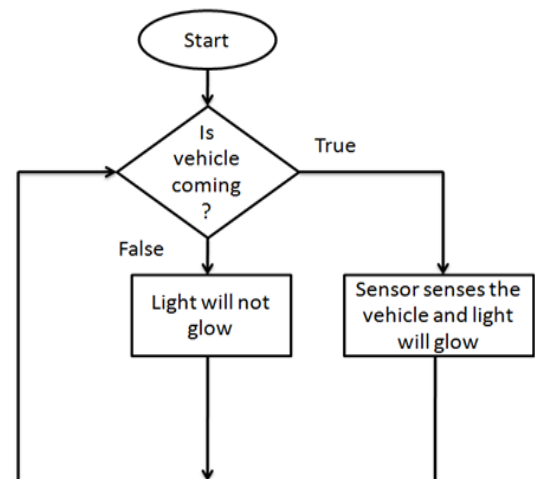

Figure4: Flow Chart for U-turns Security on Road

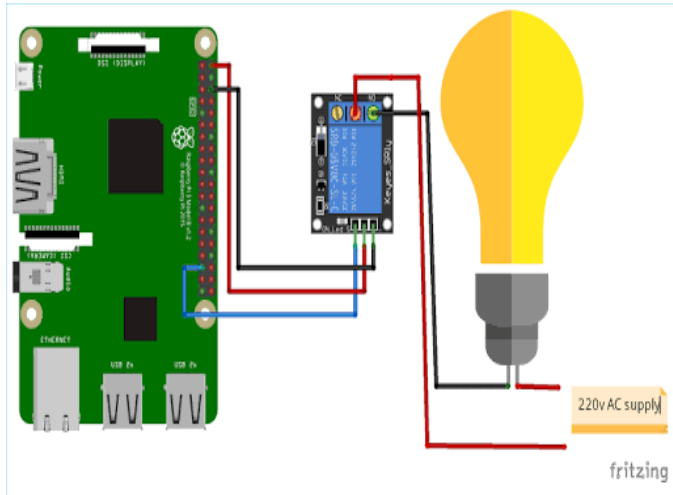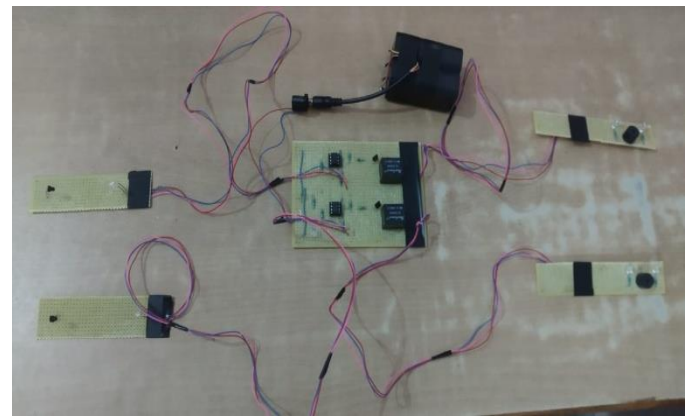## 4. How to connect appliances through Raspberry pi?

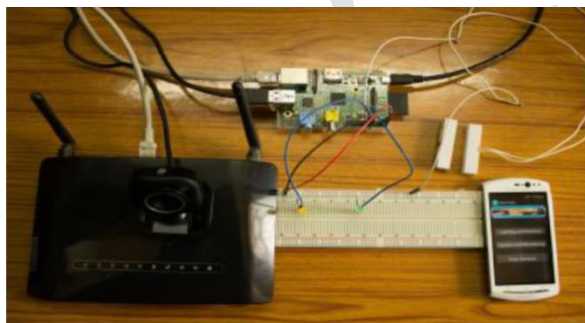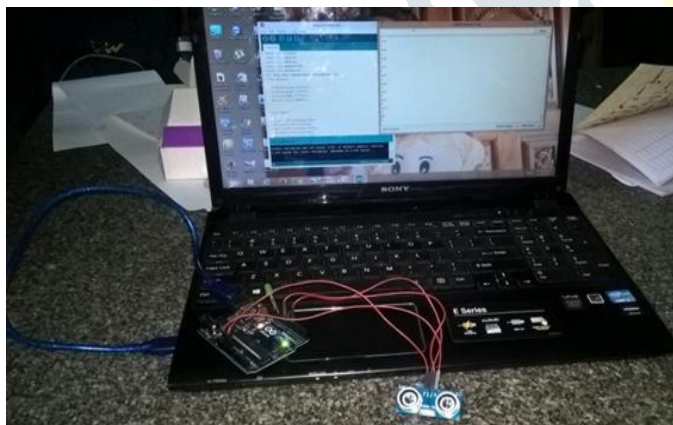**Figure5:** Connection for Home Automation
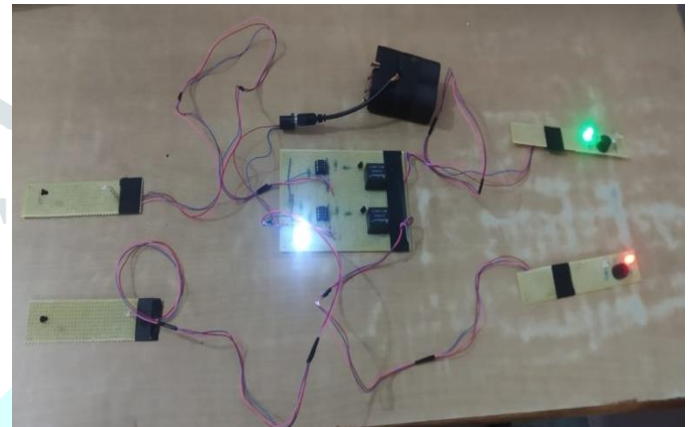
5. IMPLEMENTED IMAGES

Figure6. Controlling Lights through Mobile

(a)

(b)

(c)

Figure7. Implementation of U-turns Security

6. RESULT

All the appliances in hose is fully automated, Pi cameras are installed to alert the owner for any intruder.

U-turn circuit installation indicates the arrival of any vehicle on time to reduce traffic accidents.
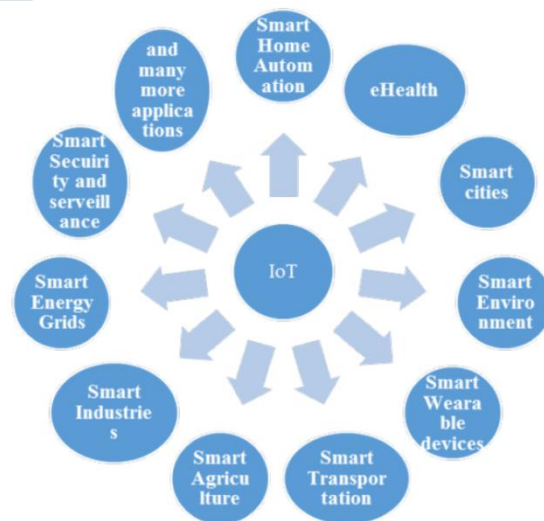
7. APPLICATION

Figure8. Applications of IoT and Smart City

a. **Module1: Home Automation:** When we are able to use home systems and appliances only when needed, the savings will be apparent in the first utility bill. No more wasting money on lights left on when we are not in home, or spending money on gas to drive home because we forget to lock the door. Monetary saving is apparent, but we will also be saving time. No wasted trips home, no running through the house turning everything off, no time spent worrying about what was or wasn't turned off.[5]

b. **Module2: U-Turn:** These techniques directly reduces the frequency of either basic conflicts or encroachment conflicts, or reduce area conflicts at or all driveways on highway by limiting or preventing certain type of maneuvers. [6]

8. FUTURE SCOPE

Besides two areas which we have highlighted there are many other factor in which IoT can be used to improve lives for e.g. Agriculture, Waste Management, Parking System, etc.

REFRENCES

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