AN INTERNET OF THINGS APPROACH FOR SMART CITY

Mansi Milind Madhale[1], Sayli Govind Patil[2],

Anuradha Shrikant Chougule[3], Preeti Vasantrao Surve[4]

[1,2,3,4]*Department of Electronics*

Bharati Vidyapeeth's College of Engineering Kolhapur (India)

ABSTRACT

New Internet of Things (IOT) applications that leverage ubiquitous connectivity, big data and analytics are enabling Smart City initiatives all over the world. These new applications introduce tremendous new capabilities such as the ability to remotely monitor, manage and control devices, and to create new insights and actionable information from massive streams of real-time date. As a result, IOT offerings are transforming cities by improving infrastructure, creating more efficient and cost effective municipal services, enhancing public transportation, reducing traffic congestion, and keeping citizens safe and more engaged in the community.

I.INTRODUCTION

A smart city is the integration of technology into a strategic approach to sustainability. 21st century has brought with it a new global trend of "sustainable urban development" and this concept adds new dimensions to urbanization which require a quick need to upgrade existing cities. The concept of smart city is a relatively new one. Throughout the years, with the significant contribution from various technologies like computer science, information technology, remote sensing, advanced multimedia world etc.

The Internet of Things (IOT) is a recent communication paradigm that envisions a near future, in which the objects of everyday life will be equipped with microcontrollers, transceivers for digital communication, and suitable protocol stacks that will make them able to communicate with one another and with the users, becoming an integral part of the internet. The IOT concept, hence, aims at making the Internet even more immersive and pervasive. Furthermore, by enabling easy access and interaction with a wide variety of devices such as, for instance, home appliances, surveillance cameras, monitoring.

II.BLOCK DIAGRAM
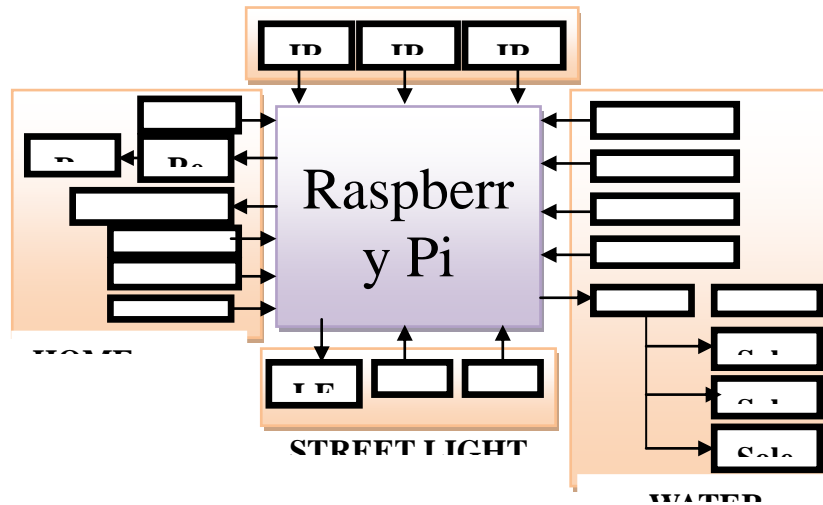
III.DESCRIPTION

1.Raspberry pi: The Raspberry Pi is a series of credit card-sized single-board computers which includes an ARM compatible central processing unit(CPU) and an on chip graphics (GPU,a Video CoreIV).CPU speed ranges from 700 MHz to1.2GB for the Pi and on board memory range from 256 MB to 1GB RAM. Secure Digital SD cards are used to store the operating system. Most boards have between one and four USB slots and composite video output,Wireless LAN, Bluetooth and 3.5 mm phone jack for audio.

2. MQ2 GAS SENSOR: MQ-2 gas sensor has high sensitivity to LPG, Propane and Hydrogen, also could be used to Methane and other combustible steam, it is with low cost and suitable for different application. Sensitivity material of MQ-2 gas sensor is SnO_2 , which with lower conductivity in clean air. When the target combustible gas exits. The sensor's conductivity is more higher along with the gas concentration rising.

3.IR SENSOR: The IR sensor –single is a general purpose proximity sensor. The module consist of a IR emitter and IR receiver pair. The high precision IR receiver always detects a IR signal. The module consists of 358 comparator IC.The module consist of 358 comparator IC. The output of sensor is high whenever it IR frequency and low otherwise.The on-board LED indicator helps users to check status of the sensor without using any additional hardware. The power consumption of this module is low. It gives a digital output.

4. WATER FLOW SENSOR: For continues ,water flow rate measurement YP-S201 is used. Connection required for this flow rate sensor with respect to Adriano's is very minimal. It has operating temperature range of -25ºC -80ºC which is wide enough for our application to operate successfully.

5.RFID: Radio frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to object. The tag contain electronically stored information to tags collect energy form a nearby RFID reader's interrogating radio waves. RFID is one method for Automatic Identification and Data Capture(AIDC).

6. SOLENOID VALVE: A solenoid valve is an electromechanically operated valve. The valve is controlled by electric current through a solenoid in the case of a two port valve flow is switched on or off , in the case of a three-port valve, the outflow is switched between two outlet ports.

IV.CIRCUIT DIAGRAM
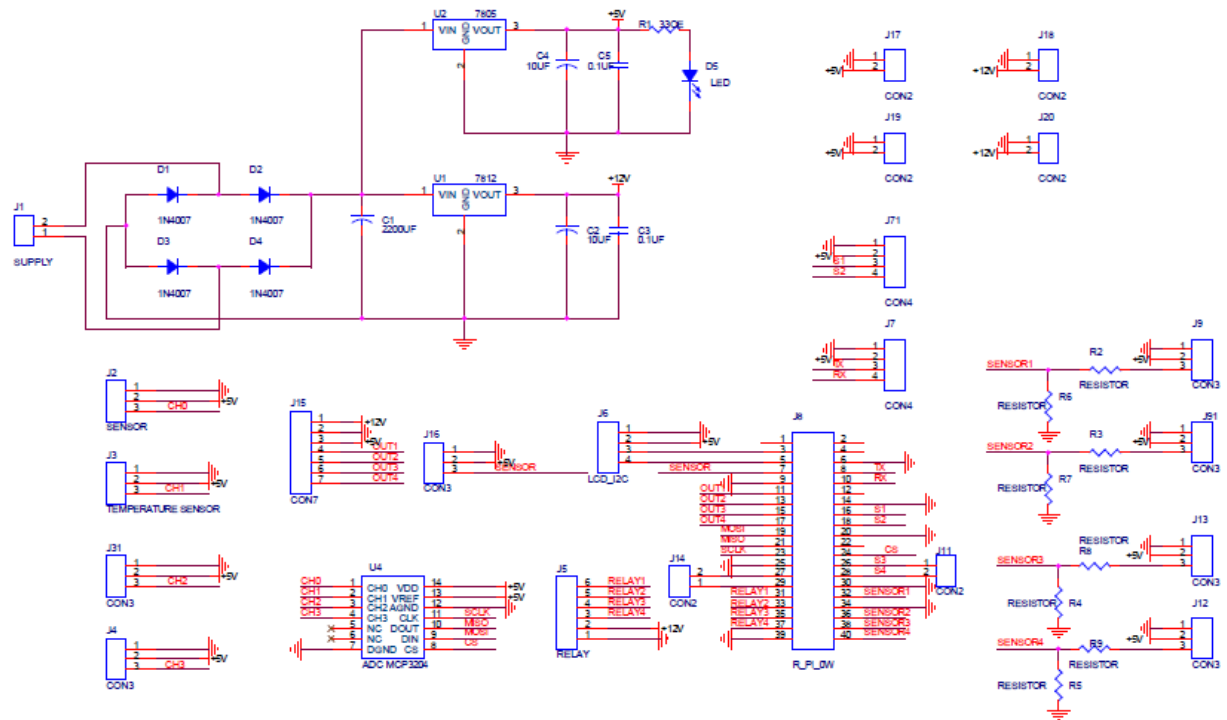
V.CONCLUSION

In our Smart City architecture we aim to address the uncertainly aspect of our Smart City semantic model. Although it is difficult to cover each and every aspect of the Smart City, through our architecture we aim to focus on the most important areas of the Smart City environment.

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