AN APPROACH OF INTERNET OF THINGS FOR ENVIRONMENTAL PARAMETERS MONITORING SYSTEM

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ABSTRACT

Effective implementation for IoT used for observing regular industrial process by means of low cost omnipresent sensing unit. The detailed view about the reliable parameter measurement by means of smart sensors is described. This paper presents the structure for environmental monitoring using the (IoT)Internet of Things. The structure comprises the complete information system from the sensor level to data management and cloud-based information about the environment. This Internet of Things vision is applied to temperate, waste management and vehicle parking to demonstrate a method for existing systems that can be adopted for the enhancement and delivery ofservices.

I INTRODUCTION

The Internet of things (IoT) is network of objects, in which the entities of everyday life are embedded with microcontroller, sensors and software that enables these objects to collect and communicate data with one another and the users, becoming the essential part of the internet. The IoT model, aims at making the Internet even more persistent. Furthermore, by enabling easy access and communication with a wide range of devices such as, for example, home appliances, surveillance cameras, monitoring sensors and so on, the IoT is implemented for the development of applications that makes use of the enormous amount and the data generated by such objects provide services. This method finds application in many different areas, such as home automate, mobile healthcare, traffic management and many others.

Tracking the environmental factors' variation is important in order to determine the quality of our environment. The collected data include important details for a variety of groups and agencies. With the results of monitoring, governments can make up-to-date decisions about how the environment will affect the society and how the society is affecting the environment. Outside the governments and other organizations, the evidence is used by many people, because of the weather's effect on a wide range of human's activities, such as: agriculture, transportation and leisure time. The information can be used by municipal engineers to design flood control systems or public health experts to

design effective policies. Timely and effective responses to environmental emergencies, such as spills, are impossible without adequate information.

II METHODOLOGY

The structure is comprised of several subsystems; each will be explained in detail in this section. Internet of Things has several of application in this paper we are discussing about the temperature, vehicle parking and waste management. These are the few issues which we are facing regularly in our day today life with the use of Internet of Things (IoT) we can provide solutions to these problems.

Temperature

The Internet of Things (IoT)plays a great role in the development of future smart cities. For instance, Air Quality Eggs can be found across America, Western Europe and East Asia, and may finally play a role in developing countries with the most rapid urban population growth and peak rates of pollution. This is a community-led air quality sensing network that allows anyone to collect very high contents of NO2and CO concentrations of their surroundings. These two gases are the most suggestive elements related to urban air pollution that are sense-able by reasonably priced, DIY sensors. The temperature plays a very crucial role. The temperature varies from time to time. The temperature in the day times is completely different in the night. In paper gives an idea of how a temperature can be identified for the city using IoT concept.

Waste Management

Waste management is a main issue in many growing cities, due to both the cost of the service and the problem of the storage of garbage accumulation. A deeper penetration of information and communications technologies solutions in this field may result in the savings and inexpensive and environmental advantages. For instance, the use of intelligent waste containers, which identify the level of load and allow for an optimization of the collector trucks route, can reduce the cost of waste collection and improve the quality of recycling. To realize such a smart waste management service, the IoT will connect the devices, i.e., intelligent waste containers, to a control centre where optimization software process the data and determines the optimal management of the collector truck.

Vehicle Tracking

The vehicle tracking facility is based on road sensors and intelligent displays that direct drivers along the ZANELLA et al.: IoT FOR SMART CITIES 25 best path for parking in the city. The benefits deriving from this service are various: faster time to locate a parking slot means fewer CO emission from the car, lesser traffic

congestion, and happier citizens. The vehicle parking facility can be directly integrated in the IoT infrastructure. Furthermore, by using communication technologies, such as RFID or NFC, it is possible to understand an electronic confirmation system of parking permits in slots reserved for residents or disabled, thus offering a better service to residents that can legitimately use those slots and an efficient tool to quickly spot violations.

III IMPLEMENTATION

Internet of Things service offers a simple but powerful capability to interconnect different kinds of devices and applications all over the world.

Temperature Architecture

The temperature variations in and around the place using the data received from the satellite. There are three entities defined in our system that is cloud devices and app as shown in theFigure.1.

Cloud: Cloud becomes prevalent, an increasing amount of data is been stored in the cloud and shared by the devices with specific privileges, which defines the access rites of the stored data.

Devices: Devices can act as sensors for the purpose of receiving or to transmit the data to the cloud. The devices can be anything which can sense the data.

Apps: Applications are programs that consume the information received from those devices.

Message Queue Telemetry Transport/Things transport. In IoT things are nothing but the devices like Buildings, systems etc. Telemetry is an automatic device which is used to measure and transmit the data. It can be considered as the secrete behind the IoT service.
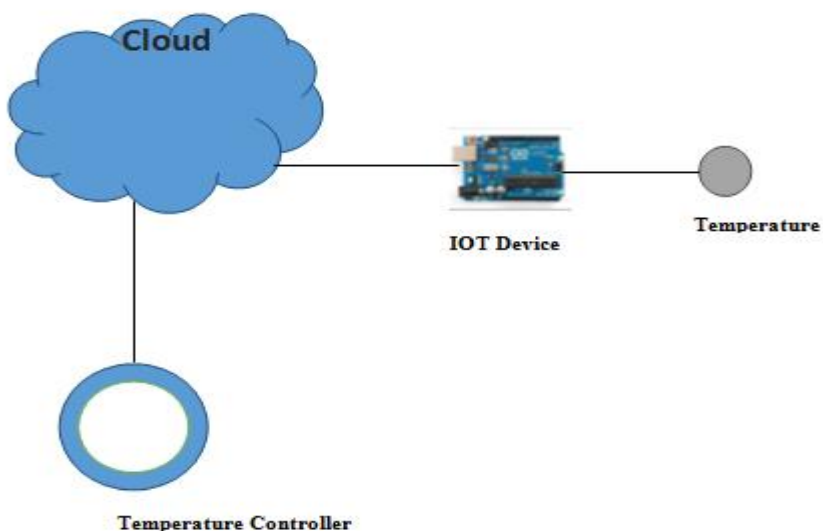

Figure. 1. Architecture of Temperature with IoT

Waste management and Vehicle Tracking

The waste management and vehicle tracking using the data received from the satellite. There are three entities defined in our system that is cloud devices and app as shown in the Figure.2.

Cloud: Amount of data is been stored in the cloud and shared by the devices with specific privileges, which defines the access rites of the stored data.

Devices: Since now a day most of the devices are GPS enabled, it is very easy to track the exact locations of the vehicles. Since in our day to day life, we do not know the exact time when the waste truck arrive to collect the garbage from every particular area. The details of the waste truck and the vehicle to be tracked are based on the latitude and longitude of the particular region.
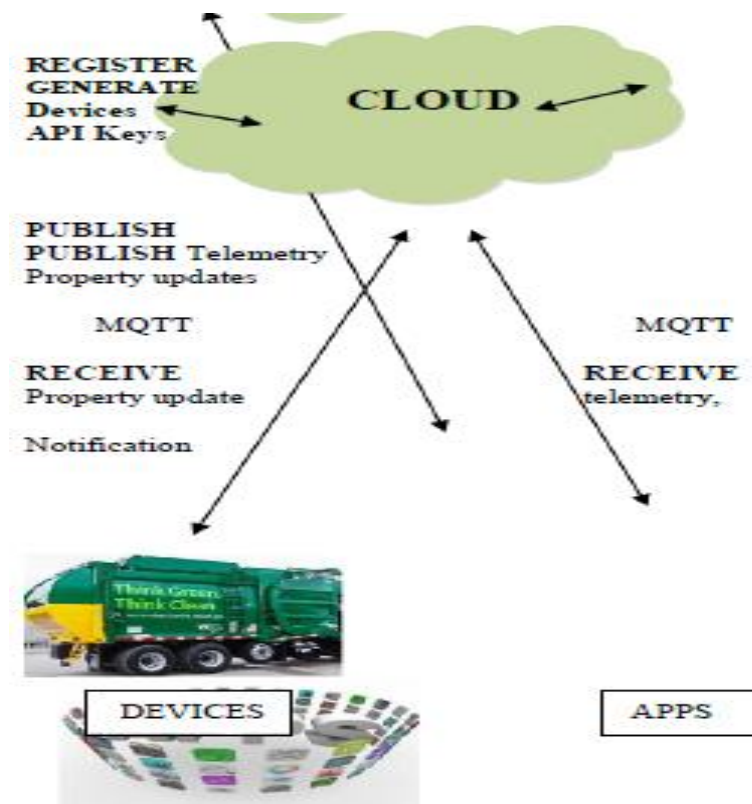

Figure.2. Architecture for Waste management and vehicle Tracking IoT

IV RESULT

Basically we have to get connected with the cloud to retrieve the data from the cloud. We can see the login page in Figure. 3, where the user has to login with the particular API Key and the token which is given by the cloud so that privacy is maintained to access the server.

In Figure. 4 we can see the temperature variation. We'll be getting the second to second update of the temperature. And through the graphs and meter we can get to know the variation in temperature. If the temperature is less than 30, the indication will be in green color. If the temperature lies between 31 and 75, we can see that the color changes to yellow and if the temperature is above 75 then the color changes to red.
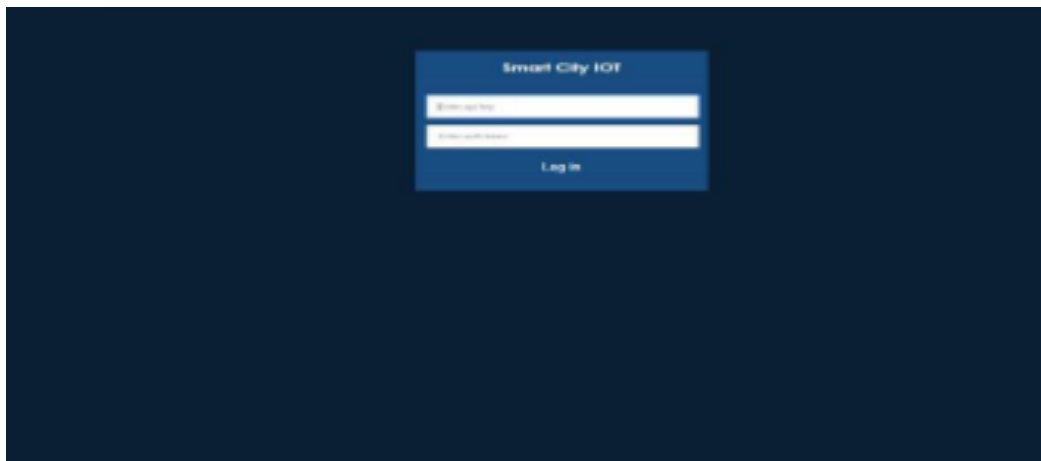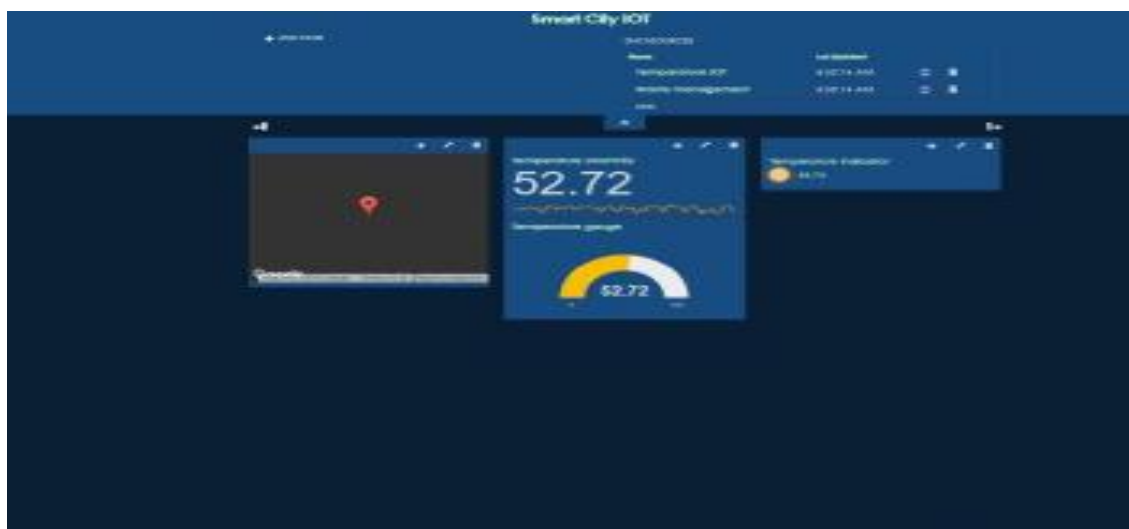

Figure. 3. Login Page

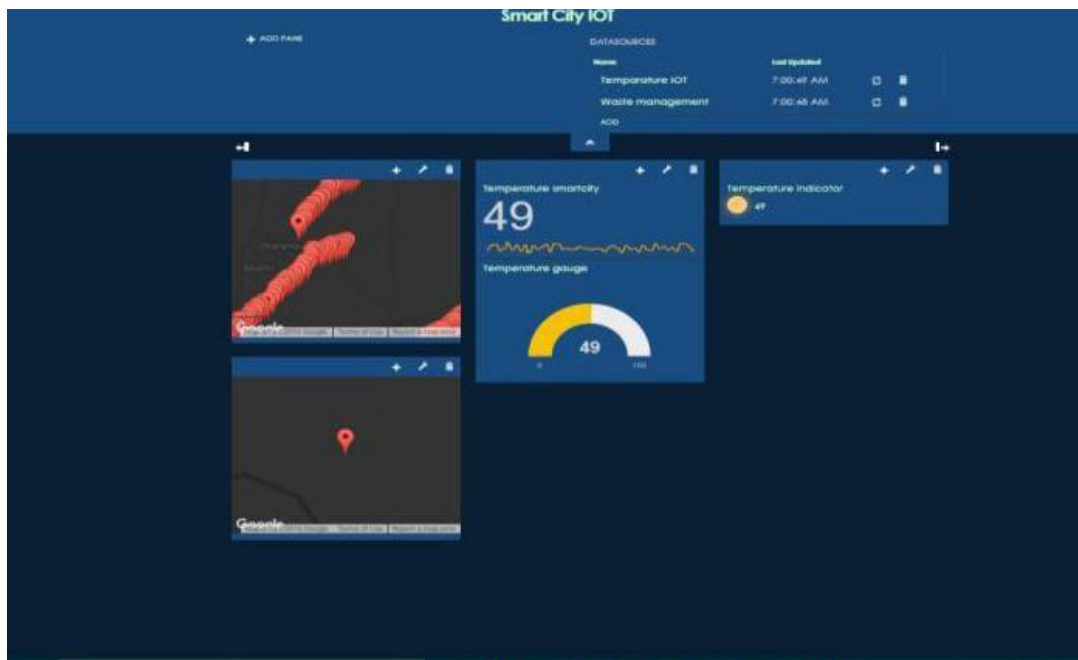
Figure. 4. Result of Temperature

Figure 5. Overall Result

V CONCLUSION

This paper, the notation of environmental monitoring using Internet of Things was proposed to monitor the city from the damages cost which may affect the living of the citizens. As a proof of concept we implemented a Internet of Things of a proposed system. We showed that our system can access the data without any embedded system.

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