Proposing a New Method for Automatic Environmental Temperature Detection (AETD) by using IOT

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ABSTRACT

IOT provides network connectivity for everyday objects that allows sending and receiving of data from the environment by utilizing two separate types of interactions viz. machine-to-machine interactions and machine-to-human interactions. This paper designed a new methodology that helps to detect environmental temperature automatically by utilizing a device named "Sensordrone". This device can be easily activated by simply turn-on by switch. The motivation towards the usage of sensordrone is to reduce human effort that correspondingly save human energy and consumes less time. In this paper, authors are discusses about the working of any non-computing device by utilizing IOT concept. It tells how microwave Owen will be operated with IOT and also gives some additional information say the description about the detailed history of processed transactions that already allotted separate IOT addresses. The aim of utilizing IOT concept is to improve our standard of living. The main focus of this paper is to capture real world data efficiently via general interaction with common objects that are most commonly used in our daily life activities.

Keywords

Sensordrone, RFID, Microchip, Google glass, Non-Computing Device, Internet of things.

1. INTRODUCTION

Internet of Things (IOT) provides networked interconnection with everyday objects as an example refrigerators and microwave Owen. The main aim of IOT is to provide general interaction between human & environment such as real world data objects [12] that further uses any type of interaction mode viz. human-to-machine and machine-to-machine. It may be used in any type of device in this paper authors are considering an example of non-computing device with the concept of IOT whose main function is only to capture real world data. Here, professionals will use separate types of combinations while integrated the devices as an example mostly they use sensors, RFID, connectivity, cost, energy and processors etc. The main purpose to use combination of separate devices is to follow a simple interconnected approach (i.e.-IOT) where in future this may also help to submerged into various IOT connections [11]. These different types of combinations are most commonly use two types of interaction mediums viz. machine-to-machine interaction medium and things-to-things interaction medium. The main aim is to provide a better internet wireless connectivity while utilizing separate types of devices. So, maximum researchers are preferably focused on the working of the physical devices how they will work for a long time after providing a net connectivity to separate devices. Later on they will also discuss about the detailed working of one medium with another. As researchers noticed, while changing a span of time the trends of IT will change simultaneously as an example change in our life style whose results provide a platform of smart living where smart living describes the usage of real world objects in smart manner. As researchers conducted number of surveys of different methods are followed by them while the digital data transference from the physical objects in this physical world. Current method follows by them is named as IOT that is internet of things. It helps us for the enhancement of human life style. The methodology followed by IOT is based on operational technology that further follows number of theories but the most common theories are viz. 6 A'S connectivity and 3 C'S that can be shown in fig.1 & fig.2:
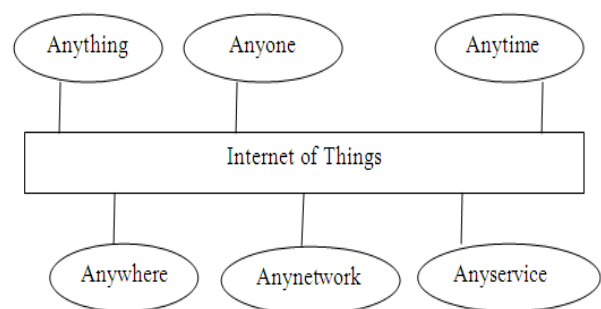

Fig 1: 6 A'S Connectivity towards IOT [7].

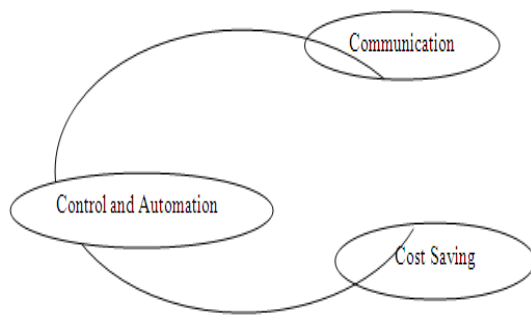Fig.2 shows the theory of 3 C'S & that are discussed below

Fig 2: 3 C's of IOT [5].

- **Communication: -** GPS (Global positioning system) is used for communication. The utilization of such type of service is to provide an easy identification of present location of the user.

- **Control and automation: -** Its function is to provide remote interactions between the consumer and the devices.

- **Cost:** -By using this theory any consumer can save money.

After surveying on these two theories, they concluded when the theory of 3 C'S is not followed by them that results the variations in cost. So to reduce the amount of cost researchers has needed to create new methods and strategies. The cost may be reduced by providing the control over data. As the days are passes the amount of data increases over the internet correspondingly that shapes into ***"Big Data problem"*** which is a common problem in several research areas as an example cloud computing and data mining. So the first duty of professionals is to analyze big data irrespective to different visions viz. data created by the people and data created by the things [13]. After that in the next step they will think on the minimization of big data problem from origin? It is for sure this problem is not removed from the root but it must be reduced up to some extent by designing new methods and strategies for controlling over data. The problem of big data will be solved by following two steps that are listed below:

> ***Step-1)*** At first, Calculate the actual amount of data placed on specific website or over the internet. Data may be in two forms either created by the users or created by the things say machines. It considers whole data collectively.

> ***Step-2) In 2nd Step,*** find new ways or methods to filter separate type of data that may either created by the people or created by the things as an example the amount of data created in one hour, amount of data created in one day, amount of data created in one week, amount of data created in one year etc.

As researchers conducted a long survey over internet almost ***50 petabytes-1024 terabytes (approx)*** of data is created on daily basis by the human beings normally by typing or pressing buttons as an example sharing of status and photos on wall on face book [16]. Generally they use several storage units for the measurement of data in many different forms that can be shown and represented in fig.4:
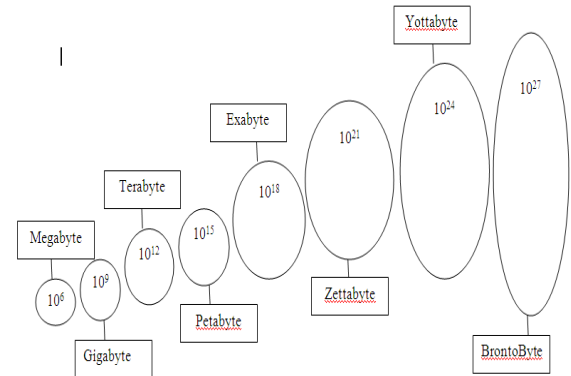

Fig 3: Unit House: For Measurement of data [17].

For keeping data at separate modes each data module has its own separate address over internet that also differentiate the type of data from the other. So we have needed to provide a separate address for keeping the data save correctly. The major benefit to use both of these concepts collectively is to collect the detailed history about how things & data are changing through online connectivity and online storage and providing a smart living standard [18].

2. OTHER BENEFITS OF IOT

- Provide a simple method for real world data capturing with smart sensors [5] [8] [14] as an example refrigerator, coffee maker and microwave Owen.

- Gives a facility for right utilization of resources for a larger system as an example super computer [15].

- Having one distinct feature called "Ubiquitous feature" that must include the separate type of information as an example Ubiquitous identification, Ubiquitous sensing, Ubiquitous computing etc. [3]. The other benefit to use this is to change or alter the relationship between humans and digitally hybrid environment [10]

- Provide energy efficient communication with scalable architecture of the network that either uses energy aware systems or some smart micro devices [9].

- Helps to provide smart connectivity with the existing network by using different-2 network resources [1] that can be shown in fig.5:
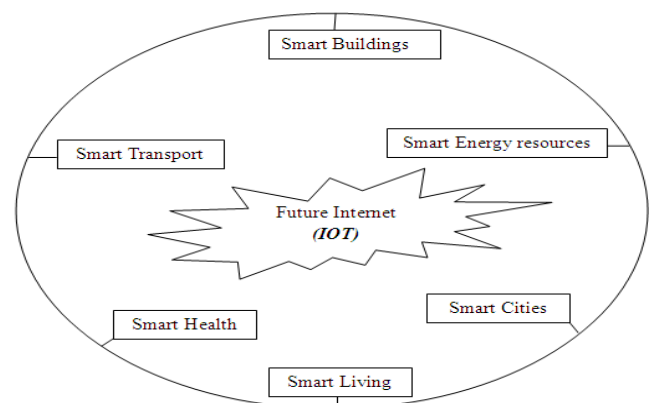

Fig 4: Future: Use of Smart Devices by using IOT[8].

> It provides automatic updations on timely basis as example new versions of software updates for future are available as an example IOM (internet of machines), IOE (Internet of Everything) and IOS (internet of services) [2].

This paper proposes a new *method* for automatic environmental temperature detection *("AETD")* by using Sensordrone and provides a method for real world data capturing from physical objects by utilizing IOT. The mapping of sensordrone with a new wearable device/technology that is named as "Google Glass". Its main function is to provide real world data capturing by simply giving a voice command within a short interval of time. This technology touches the height of sky now a days due to its additional/interesting features like Record videos & Take Pictures, Find information, Live Video Sharing and recording, Translating Feature, Provides Integrity with Google.

The motivation towards the usage of Google glasses with IOT concept is to provide general interaction between the human & environment and provide an easy way of real world data capturing that in future may also help to enhance the level of human life style utilizing smart devices. Sometimes this wearable technology is also called *"Portable Technology"* due to its small size and light weight.

This paper considers a real life example of non-computing device that is termed as "microwave Owen". It uses the concept of RFID (Radio Frequency Identification) whose working is based on microchip technology which is directly inserted in microwave Owen. The function of Microchip Technology (say RFID) in microwave Owen is to provide unique serial number that may be in the form of individual IOT address. Each IOT address will provide a smart tagging correspondingly it also saves a detailed history of transactions as an example when user operate microwave Owen then this technology automatically stores the complete temperature history record having some specific parameters that can be shown in table.1:

Time(Seconds/Mintues)	Temperature_Value
1	45
2	52

Table.1: Temperature Record History.

In this way, users will easily collect the complete temperature history record of processed transactions and provide more efficient results within short interval of time. By simply using sensordrone device environmental temperature will be automatically detected. After detection of the temperature user will give input to the Google glass in the form of voice commands as an example user may say *"OK Glass set current temperature is "*.In this way this wearable technology helps to reduce user effort and saves energy correspondingly that automatically improve our standard of living by using non computing devices in smart manner. The other benefit to use this technology is to build a better relationship between human, environment & non-computing devices.

3. RESEARCH DESIGN

Fig.5: Communication Flow Methodology that provides social interaction between human and Environment.

4. WORKING

At first, User use Sensordrone for automatic detection of environmental temperature. After temperature detection, *in the second step,* user display that measured temperature by simply sinking through android phone. *In the third step,* by using Bluetooth technology measured temperature will be transferred from android phone to Google glass. *In the fourth step,* Microphone of Google glass stores the value of that environmental temperature where the Google glass uses voice command for giving input for further communication with other non-computing device say microwave Owen as an example user says *"OK Glass set temperature is"* then it will be automatically set. This all can only be possible by the direct communication of microphone of Google glass with Microchip technology used in the Microwave Owen. The benefit to use this microchip technology (i.e. RFID Technology) is to provide smart tagging and separate address say IOT Addresses for each individual transaction [20] that further in future may help to read data remotely. In short, both devices are uses Bluetooth technology for data transfer so it acts as a connected bridge interface. & energy to enter input and correspondingly improve our standard of living by using smart devices.
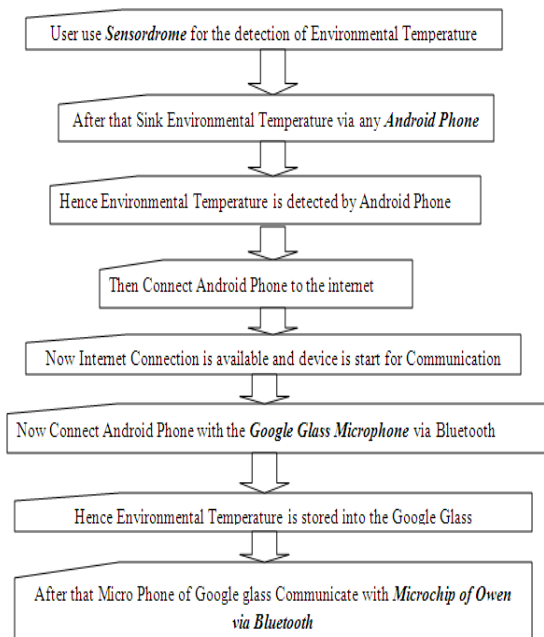
5. A ROADMAP

Fig.6: Steps for enabling proposed procedure.

6. CONCLUSION

This paper discussed about the concept of IOT and proposed a new method for automatic temperature detection by simply using a device that is named as **"Sensordrone"**. By simply turn on the device named as sensordrone temperature will be auto-detected and displayed on android phone after that user will sink this measured temperature from the android phone when required that correspondingly helps to reduce the human effort, saves energy and time. The complete functioning of AETD is based on the microphone uses by Google glasses and *microchip technology* uses by microwave Owen via Bluetooth. In this way, the concept of IOT helps to improve our standard of living by utilizing several non-computing devices in smart manner.

7. FUTURE SCOPE

In future, this IOT technology helps to highlight the future demands of the people and their upcoming opportunities that will arise as an example how demand of the people is combined with technology advances [19].

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