

# Implementation of WSN's Device Addressing in IoT Environment

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**Abstract:** - Sensor interface plays an important role in IOT environment. So in IOT environment, Sensor interface device is essential for the sensor data collection of industrial wireless sensor network. Complex programmable logic device (CPLD) works as the core controller, in order to design a reconfigurable smart sensor interface for industrial WSN. Proposed system's performance is verified and good effects can be able to achieve in practical. Sensor interface plays an important role in IOT environment. So in IOT environment, Sensor interface device is essential for the sensor data collection of industrial wireless sensor network. The factors that are restricted by the device are current connect Number, sampling rate, and types of sensors

**Key Words:** Internet of things, computing, wireless sensor network, CPLD, reconfigurable.

## 1. INTRODUCTION

The evolution towards existing information and communication network is already obvious, with the 4G-LTE wireless internet accessed by the growing wifi presence. Actually WSN, it is a group of spatially interspersed that has sensors for monitoring the physical conditions of the environment. It also records the physical conditions of the environment. In the central data it maintains the data that are collected. In earlier days WSN were used by only military fields for performing some operations but now a days WSN is used in different kinds of fields like health, traffic and many other industrial areas. The factors that are restricted by the device are current connect Number, sampling rate, and types of sensors. Improper use of power including non-standard addressing scheme and lack of device security, these two are used in the IOT environment base of sensor. By using integration of hash based addressing scheme and Kerberos based authentication system. So thereby to overcome all problems to developed IOT based network. Hash based addressing scheme for device is by developing data aggregation to reduce the power consumption. Kerberos based authentication system is used for device control.

## 2. OBJECTIVES OF RESEARCH:

- Developing the IOT based network.
- For devices, there is an integration of hash based addressing scheme.
- In order to reduce the power consumption, developing the data aggregation.

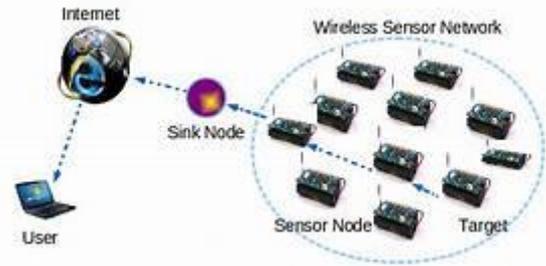


Fig.1 wireless sensor network

Fears related to nanotechnology range from bio-medical hazards to robotic control. But whatever the concern, one thing remains clear: scientific and technological advances in these fields continue to move ahead at breakneck speed. It is only through awareness of such advances, and the challenges they present, that we can reap the future benefits of a fair, user-centric and global Internet of Things [1],[2],[3]. Actually IOT, it represents a general concept regarding the network device's ability to sense and collect data from the world around us and through the internet it shares the data. IOT is a network consisting of physical devices such as things like smartphones, vehicles, home appliances etc...

WSN has dedicated sensors for monitoring and at the central location it organizes its collected data.

## 3. APPLICATIONS

### • Area monitoring

Area monitoring is an important application of WSN. In area monitoring some phenomenon is to be monitored over a region where the WSN is deployed.

### • Air pollution monitoring

Wireless sensor networks have been located in several cities in order to keep a continuous record of hazardous gases for citizens. Rather than wired installations it can take advantage of the adhoc wireless links that makes them more mobile for the purpose of testing readings in many different areas.

### • Forestfire detection

In order to detect when a fire does have started in a forest, a network of sensor nodes can be installed for the purpose of detection. These nodes are well furnished with sensors for the purpose of measuring temperature, humidity and gases those are produced by the fire in the trees.

- **Landslide detection**

Wireless sensor network is used by the landslide detection system in order to detect the minute movements of soil and variations in various criterions that may occur during or before a landslide.

- **Water quality monitoring**

Water properties in dams, rivers, underground water reserves lakes and oceans are scrutinized by the water quality monitoring system. Creation of a more precise,

Error free map of the water status can be qualified by the use of, many wireless distributed sensors.

- **Environmental sensing**

There are many types of application in order to monitoring the parameters of the environment. They all share the extra challenges of unpleasantly rough environments and it reduces the supply of power.

- **Healthcare monitoring**

There are many types of sensor networks for medical applications such as implanted, wearable and environment embedded. The implantable medical devices are those that

Are inserted into the body of human. Wearable devices these kinds of devices are used on the body surface if the human. There is many sensors in the environment, so in environment embedded systems it employs sensors that are present in the environment.

- **Natural disaster prevention**

Ramification of natural disasters like floods can be prevented by using wireless sensor network. Variation of the water levels can be observed in real time by enabling or locating wireless nodes in the river, thereby we can monitor the variations in the level of the water.

#### 4. OTHER CONCEPTS

##### A. Security

Gateways are not included and the unguarded working environment of WSN may constitutes many weak points that attracts antagonist when WSN is located in special applications like military and healthcare, in this case security is a big concern or it place a major is role.

Addressing of device can be done based on this algorithm. For the purpose of reducing the power consumption aggregation has been developed. For the user's authentication Kerberos based security system has been developed.

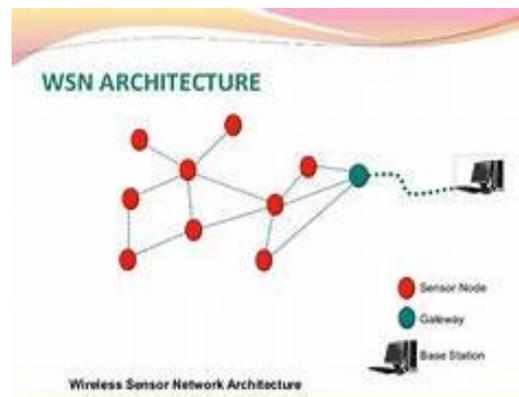
#### 5. CHARACTERISTIC FEATURES OF WSN

- **Data aggregation**

Data aggregation in the energy constrained sensor network environment is not suitable in aspects of battery power, processing ability, storage capacity, communication bandwidth etc... To avoid this problem data aggregation technique used which integrates multiple copies of information into one copy which saves energy.

- **Security**

Gateways are not included and the unguarded working environment of WSN may constitutes many weak points that attract antagonist when WSN is located in special applications like military and healthcare, in this case security is a big concern or it place a major is role.



**Fig.2** Architecture of WSN

#### 6. IMPLEMENTATION

Algorithms called Secure Hashing Algorithm have been implemented for the purpose of device addressing. The addressing of device can be done based on this algorithm. For the purpose of reducing the power consumption aggregation has been developed. For the user's authentication Kerberos based security system has been developed.

#### 7. CONCLUSION AND FUTUREWORKS

For the purpose of monitoring the parameters and device control, an efficient system has been built and it is tested with real time sensors. IOT is the future of technology that will decide how we can manage and how we can interact with our day to day devices and makes them more effective. In order to get more efficient data collection and control we can add the concept of the data collection.

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