



Internet of Things (IoT) gateway to smart villages

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ABSTRACT -- The idea of Internet of Things (IoT) is the future vision of technology. The principle behind its working is the amalgamation of Information and Communications technology, web and mobile technology. The rising population of the world makes it as the need of the hour to facilitate the villages and cities to operate in a smart way. Hence, the idea of Smart cities came into open scenario of fast pacing society. This paper extends the idea of Smart villages to smart cities. It focuses on the key areas of interest in the village perspective and the implementation of IoT in those areas. IoT provides a gate way of view with respect to improvement and progress in the quality and standards of life in villages.

Keywords: Gateway, Implementation, Information and communication, Perspectives,

INTRODUCTION TO INTERNET OF THINGS

The digital space has attested big league of transformations in the last couple of years. The latest smart technology of the digital space is the Internet of Things (IoT). IoT main principle is to call into existence a large network which is combination of different smart devices and networks of sharing information of global things from any place in world and at any time. IoT is the future emerging technology in communications. It is the vital key behind the smart village's concept.

The Digital India Program launch by the Government, which aims at 'transforming India into digital empowered society which provides the required drift for developmental progress of the IoT industry in the country. IoT on other hand can facilitate immediate solutions to various problems faced by different sectors like disaster management, agriculture, energy, health services, and security etc. through remotely connected devices.

The idea of Smart cities has initiated from the Internet of Things IoT. Internet was commonly used to connect mobile phones or computers. Likewise, Internet of Things will connect every possible device which we can label as a smart device. The governments focus their efforts and attempt towards the progress of smart cities which is technologically advanced. These cities can utilize their available resources in a smart and moderate manner. The same action and idea can be drawn-out to the villages. There stated ideas in smart cities that can be directly enforced in villages. The implemented ideas will be in the form of use of cameras and sensors in streets for surveillance, healthcare, agriculture, cattle/livestock rearing etc which need some meliorated ideas for smart working.

In the following sections, vision of IoT, the various aspects of IOT, and eventual goals to achieve smart homes, smart weather systems, smart education, smart surveillance systems, smart agriculture, smart dairy, and smart environment for the progress of the smart India will be discussed

INTERNET OF THINGS INVOLVES THREE DISTINCT STAGES:

1. The sensors which collect data,
2. Collected data is analyzed for further consolidation
3. Data is sent for decision making and the transmission through the decision-making server.

VISION OF IoT

To develop connected, secure and smart IoT based system for our country's Economy, and global needs.

SMART CITY

IoT concepts to be used in development of Smart City. The model should cover the concepts like, Smart traffic management, Smart Health, Smart Lighting, Smart parking, Smart building, E-Waste Management, Smart water Quality, Wi-Fi Internet access and city Surveillance through remote controlling etc.

SMART WATER

To setup water monitoring tools to monitor the detection of leakages and quality of tap water, and wastes of factories in rivers, water level variations and for proactive disaster management.

SMART ENVIRONMENT

To setup project for alarms for control of hazardous gases emissions from the factories, pollution emitted by cars and toxic gases and establish a National Advance Disaster Alarm System.

SMART HEALTH

To setup projects for monitoring various problems of patients like pulse, respiration, heart condition, life-threatening problems, and at remote patient location including old people's home and ambulance.

SMART WASTE MANAGEMENT

The projects may be setup to create products which are solar-powered trash receptacle and trash compactor that give alerts to sanitation departments of municipal authorities.

SMART AGRICULTURE

The project may include monitoring of soil texture, moisture, earth density and pests formations to detect dangerous worms and pesticides in crop fields and creates an online update mechanism for farmers to notify the upcoming changes in fields.

SMART SAFETY

To setup project to build devices for women, child, old people and physically disabled persons safety and for supporting mentally unhealthy patients from getting lost from homes and hospital to trace them.

GOVERNANCE STRUCTURE

Legal Framework: Legal frameworks will be created for issues that might arise due to IoT related product/systems/services.

Advisory Committee: To set up a High Level Advisory Committee (AC) including representatives from Government, industry for providing ongoing guidance in the emerging trends of IoT.

Governance Committee: To set up a Governance Committees for different domains to be chaired by Secretary of respective Ministry/Department including representatives from Government.

Suggestive Measures: Awareness Program

1. Publishing articles in leading journals.
2. Audio & Video material for awareness through social media.
3. Conducting workshops for working professional executives from different industry and form academic institutions.

CONCLUSION

The idea of Internet of Things and Smart cities used to be noticed as a future potentiality and progress of country. But it has become a reality today, because of technological advancements. The need of the hour is optimal use of available resources. Ever-increasing population has guarded the available resources and their usage. IoT plays a key role in combining the multiple technologies to substantiate the idea and concept of intelligent devices in a city. This concept can be extended to the villages as well, improving the quality life of the inhabitants; this paper focuses on those various areas of interest have been explored to aim to provide solution for the better standards of life using the IoT as a gate way to the smart life of living in smart villages in smart India.

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