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A Survey paper on Rural Smart Village using Internet of Things

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***Abstract*:** This paper is about the IOT usage in developing smart rural villages which need the prime focus in terms of development, growth, and progress. Rural villages have too many scope of development which provides a way to implement different innovative ideas which change the face of rural India. Different technique provides the idea about different innovation in the field of IOT. In this paper we also tell about what is IOT and how it is implemented in development of smart villages.

***Keywords*—**Internet of Things.

I. INTRODUCTION

IOT referred as "a set of technologies for accessing the data collected by various and wired internet networks" Farming is the most old profession that comes into existence and according to Rob Thomas author of Big Data Revolution. Through this we understand that farming have too many scopes for development and the deployment of IOT in the rural sector blends together a range of fields such as AI, animal healthcare and energy also enter the fray.

IOT in Agriculture:
IOT has been deployed across a broad array of setting such as healthcare, smart factories, and many numerous application also arise in agriculture.IOT will further extend and amplify this impact. IOT and remote sensing have helped unearth new innovation.IOT also plays out well within India's startup ecosystem.

IOT along with big analytics can also helping reducing the chronic energy shortage in rural farming sector.IOT in agriculture can unleash the benefits.IOT along with analytics can reveal new insights for seasonal planning of crops.

Smart farming machinery can be configured to reduce downtime via predictive maintenance, leading to a smart farming.

Sensors designed to monitor moisture, soil quality, Fertilizers level climate control, weather forecasting, optimized warehousing, and planned storage can lead to direct benefit for the Farmers and land owners.

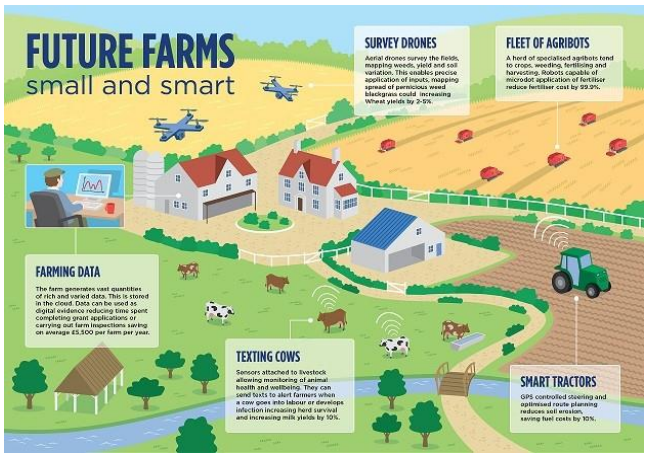

Figure: 1

Crop Water Management:
Proper management of water can boost crop productivity. This is the major move and boosts the farmers because of impending doom of water scarcity. Water will never waste and farmers will be able to open and close water gates in an effective manner through the apps in their smart phones. With the sensors attached on the water gates, farmers will be able to do a trend analysis.

Water Tank Automation:
The timing of water inflow according ly to that running water will pump. Pump will be auto turned off when the tank is full with water.

Smart Building:
By using sensors and cameras in houses and building we can smart it up this will produce the real-time data which can be analyzed to take necessary action. Gas Sensor is one of the technique through which one can detect smoke at home.

Water Harvesting:
Water Harvesting is saving water which plays the major role in smart Village .For water saving purpose olden days were the best method of saving water.

Smart Healthcare:
Smart health services needed to improve the quality the life of village. The village dispensaries need the smart devices that connect to each other and the doctors. The beds can be embedded with the sensors which can detect various changes in the patient including the heartbeat rate, blood pressure, sugar level.

Smart Surveillance System:
Security plays the important role in today's world of digitization and in villages it requires more because lights and police station are far off. Due to these factors the smart surveillance system is needed in village. By using the different sensors in different parts of village and data is generated by using the sensors and cameras. The data is generated by the cameras can use to locate theft very easily.

II. LITERATURE VIEW

The author of paper [1] tells us about the structure which provides an exclusive identity of data over network without requiring a two way handshaking in network. It means "Smart" utilizes sensitive information and address the rural challenges. The ideal situation on basis of occupation of agriculture, the ecosystem control technology and system becomes mature having high level intelligence.

The author of paper [2] provides the idea of usage of cloud data in IOT and provides the smart solution for rural development many smart and advanced technologies introduced through this combination and it is very useful in near future. Rural IOT system is not easy to relate with but then also it supports too many technology through which we can develop smart village.

The author of paper [3] tells us about that villages which are isolated and not in the reach of people through IOT we can not only able to settle them with urban people bu also we are able to connect them with the higher technology of today's era. Water provided in house in winter and in summer are different so we can control the supply of water by using smart sensors in IOT.

The author of paper [4] tells us about the smart village mission which aims at exploiting the most advanced communication technologies. IOT based Monitoring system helps customer to monitor their own usage and adjust behavior according to it. This paper provides the solution for energy management.

The author of paper [5] tells about amalgamation of mobile, web and information the rising population requires the quick data access and for that we require to develop a smart city and smart village for accessing every type of data. Its main focus is on village function and smart development by using the applications of IOT.

The author of paper [6] tells about the detailed view of IOT through which we understand that what is IOT and how it works. It is very useful when we talk about digitization in which each and every system works automatic and completely based on sensors.

The authors of paper [7] tells about the Digital electronic display board is fast gaining acceptance and application in different areas of life which include educational institutions, public utility places, different walls, buildings which make the environment look untidy.

III. APPLICATIONS

For displaying different kind of information we use different ways of communication like we use notice board in railway station. In mall and many other areas for controlling humidity we use temperature sensors. E-display system used for emergency message in hospital. Some areas where IOT frequently used:

Smart Cities: To make a smart city to engage with the data exhaust produced from your cities and neighborhood.

i) Monitoring of vibration and material condition in building, bridges and different historical monuments.
ii) Monitoring of vehicles and pedestrians level to optimize driving and walking routes.
iii) Intelligent highways with warning messages and diversions according to climate conditions.

Security & Emergencies: Detection of those people who are unauthorized and restricted different liquid detection on data centers as well as in sensitive building grounds. In Nuclear power stations there is a distributed measurement of radiation levels.

Smart Agriculture: Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar of grapes and grapevine health. Control micro-climate condition to maximize the production fruits and vegetables and its quality.

Domestic & Home Automation: Energy and water supply consumption monitoring to obtain the costing and resources. Switching on and off remotely appliances to avoid accidents and save energy.

IV. CONCLUSION

IOT has the potential to make extensions and enhancements to fundamental services in transportation, logistics, security, utilities, education, healthcare and other areas, while providing a new ecosystem for application development The IOT promises to deliver a step change in individuals‟ quality of life and enterprises‟ productivity. This market has distinct characteristics in the areas of service distribution, business and charging models, capabilities required to deliver IOT services, and the differing demands these services will place on mobile networks. Connecting those smart devices (nodes) to the web has also started happening, although at a slower rate. The pieces of the technology puzzle are coming together to accommodate the Internet of Things sooner than most people expect. Just as the Internet phenomenon happened not so long ago and caught like a wildfire, the Internet of Things will touch every aspect of our lives in less than a decade.

Medical field: Medical Condition of patient in hospitals as well as in old age homes with this one more things is very important that is storage of medicines and other equipments through which one will monitor and control the quality of medicines.

Industrial Control: Machine will auto diagnosis the problem and control the condition. Monitoring the oxygen levels and toxic gases inside the chemical plants. In Food factories monitoring ozone levels during the drying meat process. Information collection from Can Bus to send the real time alarms to emergencies or advice to drivers.

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