

PROBLEM STATEMENT

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BACKGROUND:

The IoT, acronym for the Internet of Things, is a coordination of interconnected digital and mechanical devices, people, animals or objects that have been offered with the talent of sharing information without the assistance of human to machine communication, with the help of unique identifiers. The IoT has faced remarkable victory in the fields of business, medicine, defence, smart city and many more. Agriculture is a main sector that has a vast functional potential while considering the Internet of Things. In order to generate environmental states that are compatible for the growth of plants and animals, protected agriculture uses artificial devices and modern development to manipulate best suited climatic behaviours. In this study, the main focus will be on the recent problems, and suitable solutions faced by agricultural sector and provide prospective high tech and modern IoT applications, structures and technologies. Population growth, a constant reduction in natural resources, limited arable land, and increased natural disasters make food security a major concern for most countries. In this regard, the use of the Internet of things and big data analysis is aimed at improving operational efficiency and productivity in the agricultural sector.

OBJECTIVE:

For the applications to be cost effective, interoperable and scalable, there should be several open architecture solutions from the aspect of IT design. Selected training should be provided to all farmers free of cost in order to make them comprehend the use of IoT devices. Guidance and development of required human resources in suitable areas must be provided attention. By approaching the farmers with collaboration and open communication, investors of AI technologies and IoT will be able to provide a significant success to their companies, the farmers and agriculture in general. The fear of technology should be dispersed slowly but steadily. There were suggested that integrated collaboration such as “community of contributors” are required, in which the contributors include agriculture academicians, development experts, software, hardware experts, agriculture business practitioners, agricultural input suppliers, dealers and farmers. This needs to be sanctioned by the government in order to establish a safe and legal practice and for the initiation and gradual development of this segment.

There is a promising conception known as Smart Farming which is based on the management of farms with the aid of latest IoT devices in order to elevate the quality and quantity of products at the same time optimizing the required human employment. Smart Farming provides value to latest agricultural trends such as individual plant/animal/crop preservation, preserving high quality crop, cattle farming, breeding specific animals, family farming, and organic farming.

In this era, current farmers are able to utilize agricultural technologies such as the following:

- Sensors: temperature, humidity, light, water, and soil management.

- Software: Tailor made solutions are available in software forms that aims to aid particular farm types with the use of IoT platforms
- Artificial Intelligence: Processing facilities, autonomous tractors, robotics for farm management.
- Location: Satellite, GPS monitoring and recording
- Data analytics: Using data pipelining solution for down streaming, individual analytics solutions.

With the help of above-mentioned devices, connections, equipment and sensors, farmers will be able to monitor and record the status and procedure of their fields from home and generate strategic ideas for the development of either a single plant or the entire farm. Interconnection of smart devices and sensors integrated with information driven process to enhance farm utilization is a major positive aspect driven from IoT.