Ideation Phase
Empathize & Discover

Date	19 September 2022
Team ID	PNT2022TMID11788
Project Name	Project - 27243-1660051684 (SmartFarmer - IoT Enabled Smart Farming Application)
Maximum Marks	4 Marks

EMPATHY MAPPING

what do they THINK AND FEEL?

The primary motivation for their applications is the breakthrough progress of smart agriculture and its inevitable role as the future of smart and sustainable environment management.

Sensor devices are specially designed to operate in open environments, in nature, in soil, water, and air to measure and collect environmental parameters that affect production, such as soil nutrients, humidity, temperature, etc. Sma

what do they HEAR ?

The growth of the global population coupled with a decline in natural resources, farmland, and the increase in unpredictable environmental conditions

To achieve this objective, we discuss the vision of IoT-enabled smart agriculture ecosystems by evaluating their architecture (IoT devices, communication technologies, big data storage, and processing), their applications, and research timeline.

IOT Enabled Smart Farming Application

what do they SEE?

IoT sensor nodes collect information from the farming environment, such as soil moisture, air humidity, temperature, nutrient ingredients of soil, pest images, and water quality, then transmit collected data to IoT backhaul devices

In reality, the number of collected data is huge, and traditional data storage, organization, and processing solutions are not feasible. Therefore, big data processing solutions need to be researched and applied for smart agriculture

what do they SAY AND DO?

In order to meet the needs of consumers and increase profit value, in the future, farms need to demonstrate that products offered to the market are clean products and can be tracked and traced conveniently, thereby enhancing the trust of consumers in product safety and health-related issues

Monitoring information, such as soil condition, moisture, and temperature, and the prediction of natural factors, such as rainfall and weather, support the control of growing conditions of crops, helping farmers plan and make irrigation decisions to optimize production and reduce labour costs

GAIN

The survey results indicate that IoT components for the smart agriculture sector, including hardware and software, have been focused on research and achieved many breakthrough results. Survey results indicate that many studies have been performed to apply IoT for smart agriculture, aiming to enhance productivity, reduce human labour, and improve production efficiency. The benefits of applying IoT and big data in agriculture were discussed.

PAIN

One of the most important problems of applying IoT in smart agriculture is the security problem, including the protection of data and systems from attacks on the internet. In regard to system security, IoT devices' limited capacity and ability led to complex encryption algorithms that are impossible to implement on IoT devices.