**Smart Farmer – IoT Enabled Smart Farming Application**

**ABSTRACT**

The agricultural industry plays a vital role in the economic health of every nation due to the fact that it contributes to Gross Domestic Product and food production. Several issues are related to traditional methods of agriculture, such as waste of water during irrigation, dependency on non-renewable power sources, time, money, human resources, etc. A smart development of agriculture sector is essential for the growth of the country since every activity today is becoming more and smarter. IoT Technology is used in this paper to create the Smart Irrigation System through the monitoring of soil moisture and climate conditions thus, preventing water wastage and maximizing crop productivity. IoT technology is being used to inform farmers about the status of sprinklers and measure soil moisture. This value enables the system to use the right quantity of water without over or under irrigation. The sensors measure soil moisture levels.

**INTRODUCTION**

Agricultural growth is India's main focus. A country with consistent agriculture growth can become an economic powerhouse. A country like India has very favorable climatic conditions to grow various agriculture crops. The two most important resources in India are land and water. A deficiency of water resources has heavily influenced the yield of agricultural crops. So, water scarcity has a consequently immense impact on food production. In the absence of water, farmers are unable to cultivate crops, which results in a decline in food production to ensure there is enough to feed every human on this planet. The use of irrigation systems hasn't been done in an efficient way, reducing water utilization in an efficient manner. It is a method of conveying water to crops to maximize yields. As a result, this study proposes using a distributed network of sensor nodes and dispersed pumping units to give water to the sensor units' precise locations. We present an automated irrigation system using a low-cost moisture sensor.

**PROBLEM STATEMENT:**

The main way of life of our country is agriculture. More than 70% of the livelihood of the population depends on agriculture. It is also a great source of the country's economy. In order to make this field more profitable for farmers, it is necessary to grow suitable crops on their fields. The major issues faced by farmers are irrigating crops with precise amount of water which results in high rate of crop yield

An automated irrigation system is needed to optimize water use for agricultural crops. The technique can be used for application of accurate amount of water. By forming sensor network, good monitoring of water regulation in the agriculture field can be achieved.

**AGRICULTURE:**

Agriculture plays a significant role in the economic sector. Automation in agriculture is the main concern and emerging topic around the world. Artificial intelligence in agriculture has sparked an agricultural revolution. This technology has protected crop yields from various factors such as climate change, population growth, employment problems and food security issues. AI protects the agricultural sector from various factors such as climate change, population growth, employment problems in this sector and food security. Today's farming system has reached another level thanks to AI. Artificial intelligence has improved crop production and real-time monitoring, harvesting, processing and marketing. Various high-tech computer-based systems have been developed to determine various important parameters such as weed detection, yield detection, crop quality and many more.

**AUTOMATIC IRRIGATION PROCESS:**

Nowadays agricultural field is facing lot of problems due to lack of water resources. In order to help the farmers to overcome the difficulties, smart irrigation system has been used. In this system, sensors such as soil moisture are connected to the input pins of Arduino micro controller. If the sensed value goes beyond the threshold values set in the program, the pump will be automatically switched ON/OFF by the relay circuit and it is connected to the driver circuit which helps to switch the voltage. The farmer will be intimated about the current field condition through GSM module. By using this system, the farmer can control the system of the field from anywhere & at any time

**CONCLUSION**

The main objective of this smart irrigation system is to make it more innovative, user friendly, time saving and more efficient than the existing system. Measuring parameters such as soil moisture, humidity values and the system also includes intruder detecting system. This system will provide the farmers with facility to irrigate their crops automatically as per the need of soil or water quantity to the crop