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**IOTBASED SMART MONITORING
AND IRRIGATION SYSTEM FOR
AGRICULTURE**

**MUHAMMAD SYAKIRUL IRFAN BIN MOHD
SAHIRAN**

**Diploma of Electrical Engineering
(Power)**

**Centre for Electrical Engineering Studies
College of Engineering**

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ABSTRACT

IoT-based smart irrigation systems is a project to monitor the weather condition and control irrigation automatically so that crop yields can be improve and reduce water usage due to the traditional irrigation systems. The project's goal is to improve irrigation efficiency, minimise water usage, and raise crop yields. Additionally, the project is anticipated to offer farmers insightful information about their crops by using IOT technology and few sensors for real time monitoring system that will enable them to make wiser choices regarding the farm operation. This project can be divided into 2 parts. The first part is to assemble the sensor to make the project work which are soil moisture sensor, rain sensor, temperature and humidity sensor and wind speed sensor. The second part is to display the information gain from the sensor into the LCD display and using IOT application. This also can be used to generate alert warning to the user by using mobile interaction. This developed system has shown that automate irrigation system will help farmer to reduce overwater usage and monitoring system to be more efficient so that the farmer can make accurate solution for the crop fields depending on the surrounding.

Keywords—*Arduino, Water pump, soil moisture sensor, IOT*

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1.1 Introduction/Background

The usage of Internet of Things (IoT) technology in farming is part of the innovative and revolutionary smart agricultural system. Real-time data collection, analysis, and action are accomplished through the integration of hardware and software tools. By boosting crop yields, enhancing farm productivity, and cutting waste, this strategy can revolutionize the agricultural sector.

Systems based on the Internet of Things (IoT) for smart agriculture are intended to provide real-time monitoring of a variety of characteristics, including temperature, humidity, soil moisture, crop growth, pest infestation and rainfall. The farm is equipped with sensors to gather data, which is then processed by software to produce insights and recommendations. This knowledge can help farmers maximize crop yield, use resources more effectively, and cut costs.

Furthermore, smart agriculture technologies can assist farmers in making educated decisions about crop rotation, irrigation, fertilization, and pest management. This has the potential to significantly improve crop productivity, quality, and sustainability.

In this day and age of rapid technological innovation, IoT-based smart agriculture systems offer excellent potential to change agriculture and secure food security for future generations. This approach can help farmers, consumers, and the environment by supporting sustainable farming practices and increasing agricultural efficiency.

1.2 Problem Statement

The first problem statement for this project, usage water in agriculture uncontrollable. This is because manual watering and timer-based irrigation systems are ineffective and wasteful traditional irrigation techniques. They frequently result in