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FINAL REPORT:

WATER SPRINKLER AUTOMATED

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ABSTRACT

Development of automated water sprinkler system were focused for agriculture sector whereby it able to work independently, intelligently and systematically with minimal human interference. With this prototype, the farmers are able to reduce their working hour to watering their plants either in small are of farm or large area of estate. Besides, it will reduce the utilization of high manpower as part of cost reduction in operation. The system developed based on PIC 16F877A as a microcontroller which capable to control and interact the input and the output . Moisture sensor was applied as an input part where it is functioned as soil moisture detection, whilst solenoid valve used as an output part to flow the water to sprinkle system. In addition to that, relay was introduced which mainly operated as a switch to open and close the electric flow based on timer that was set in PIC and it will control the solenoid valve either in ON and OFF state. As a result, when moisture sensor detected the soil condition was dried, it will sent the electrical signal to PIC and subsequently PIC will instruct the relay to close the circuit causing a solenoid valve turned ON and flow the water in 4 minutes. After 4 minutes, the relay will open the circuit causing a solenoid valve turned OFF and water will stop flow immediately. When soil in the wet condition, moisture sensor will sent the electrical signal to PIC and the relay will remained open the circuit causing solenoid valve in OFF state and no water will be flowed. All the interaction between moisture sensor, relay and solenoid valve has been set in the PIC program in order to ensure the system work flawlessly. Since Malaysia one of the top exporter in plantation product such as palm oil, pineapples, paddy, rubber, local fruits, vegetables and so on, this system will help those plantation companies or individual by saving their workers time as well as reduce the manpower's so that the profit can be maximized and work efficiently. With this low cost automated water sprinkle system, all the farmers are afford to own it one in order to improve their working time, working style and build the quality of life in near future.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Now days, water shortage is become one of the biggest problem in the world. Many different

methods are developed for conservation of water. We need water in each and every field. In our day to day life also water is essential. Water is considered to be basic need of human. Water are needed for everyone human beings, animals, plants, etc. Agriculture is one of the fields where water is required in tremendous quantity. Waste age of water is major problem in agriculture. Every time excess of water is given to the fields. There are many techniques to save or to control wastage of water from agriculture.

In sprinkler or overhead irrigation, water is piped to one or more central locations within the field s and distributed by overhead high-pressure sprinklers or guns. A system utilizing sprinklers sprays, or guns mounted overhead on permanently installed risers is often referred to as a solid set irrigation system. The valve is function to flow out and stop the water in the hose. Guns are similar to rotors, except that they generally operate at very high pressures of 40to 130 lbf/in² (275 to 900 kPa) and flows of 50 to 1200 US gal/min (3 to 76 L/s), usually with nozzle diameters in the range of 0.5 to 1.9 inches (10 to 50 mm). Guns are used not only for irrigation, but also for industrial applications such as dust suppression and logging. Sprinklers can also be mounted on moving platforms connected to the water source by a hose .Automatically moving wheeled systems known as traveling sprinklers may irrigate areas such as small farms, sports fields, parks, pastures, and cemeteries unattended. Most of these utilize a length of polyethylene tubing wound on a steel drum. As the tubing is wound on the drum