WIRELESS EC SENSOR ACQUISITION SYSTEM

This thesis is presented in partial fulfillment for the award of Bachelor of Engineering (Hons) Electronics Engineering (Communication)

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ABSTRACT

This project is all about how to measure Electrical Conductivity (EC) inside the solutions and soils using reliable method. After measuring the voltage value of the solutions and soils, it can be converted to Electrical Conductivity (EC) value by calculation. The data then will be transmitted via Wireless Sensor Network (WSN) based on ZigBee technology. This will ensure the objective of this Final year project 1 which is to understand what is Electrical Conductivity (EC) and Wireless sensor network (WSN). Then, to build the hardware of Wireless EC Sensor Acquisition System (WESAS). Measuring the Electrical conductivity (EC) and make comparison with existing products. Furthermore, design the EC sensor circuit using EAGLE PCB design software .After that, testing the Wireless EC Sensor Acquisition System (WESAS). Lastly, do comprehensive analysis of the Wireless EC Sensor Acquisition System (WESAS). In addition, to implement this project into reality, good methodology is been planned. The first step of the methodology, is to do feasibility study on how to find an efficient method of measuring electrical conductivity (EC) of solutions and soils. The journals are studied in order to construct a good literature review. The EAGLE PCB design software will be used to design and simulate EC circuit. Next step is to build hardware modeling for this Wireless EC Sensor Acquisition System (WESAS). By the completion of the EC sensor hardware, the EC circuit will be integrated with Wireless Sensor Network (WSN) based on ZigBee technology. Any problems that arise will be resolved systematically in troubleshooting phase. The Wireless EC sensor is expected to have the ability to detect amount of Electrical Conductivity inside the soils by using specific probes and the data will be transfer via Wireless Sensor Network (WSN). As a conclusion, Wireless EC Sensor Acquisition System (WESAS) is a high mobility device that really important to agriculture players to increase their competitiveness.

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