

**TRACKING VESSEL IN TISSUE CULTURE LABORATORY  
USING RFID SYSTEM AND LDR SENSOR**

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## **ABSTRACT**

Tissue culture laboratory at Malaysian Palm Oil Board (MPOB) is one place that involved in producing superior planting material through tissues culture or cloning process. In the tissue culture laboratory, a lot of vessels for cloning process are located in several racks with different growth rooms. All the data specification of vessels such as date, the person who doing the cloning process, and number of racks are recorded manually on log book for the future references. Besides that, the data of tracking the vessel such as time and who take out the vessels also done manually. This thesis proposed a project consists of Radio Frequency Identification (RFID) system with LDR sensor to replace the current method of data tracking vessels. This project consists of two main parts which are hardware and software. In hardware part, the main component is RFID card, RFID reader, PIC 16F877A, and Light Dependent Resistors (LDR) sensor to detect the vessels. Meanwhile, for the software part, visual basic software is used to display the information or data. Tested has been performed and the result show the improvement of the tracking vessel system in the tissue culture laboratory.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 BACKGROUND OF PROJECT**

Radio Frequency Identification (RFID) is an acronym for radio frequency identification, which is a wireless communication technology that is used to uniquely identify tagged object or people (Daniel Hunt 2007). Besides that, RFID also is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders (Wadham 2003). The basic function of a RFID tag is to store data and transmit data to the interrogator. The tag and the interrogator communicate information between one another via radio waves. When a tagged object enters the read zone of an interrogator, interrogator signals the tag to transmit its stored data (Muhammad Islam Oct 2009). The tag is composed of two important elements and one optional component. Those are integrated circuit microchip for store and process data, an antenna for transmitter and receiver and memory as the optional component. RFID has many applications such as in coming years; new RFID applications will benefit a wide range of industries and government agencies in ways that no other technology has ever been able (Daniel Hunt 2007).