

CHARACTERISATION OF INTERDIGITAL  
CAPACITOR FOR WATER LEVEL SENSOR

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## **ABSTRACT**

Water levels sensors are studied by using Inter Digital Capacitor (IDC) technique on Printed Circuit Board (PCB). The effectiveness of using PCB is studied as to reduce the cost of making sensor. IDC technique is used to make the capacitance measurement of the solution became more effective. This paper reports the effects of width and spacing of the capacitor electrode on capacitance value. This paper also presents simulation and experimental data to characterize the sensor. The result shows that the capacitance value is directly proportional to the electrode's width and inversely proportional to the electrode's spacing. When the IDC is tested with different medium i.e. tap water and distilled water, the capacitance value for tap water is much bigger compared to distilled water.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 BACKGROUND OF THE STUDY**

Level sensors are detects the level of substances that flow, including liquids, slurries, granular materials, and powders. The substance can be measured using a container or can be in its natural form i.e. lake or river. The level measurement can be either continuous or point values [1]. Continuous level sensors measure level within a specified range and determine the exact amount of substance in a certain place, while point-level sensors only indicate whether the substance is above or below the sensing point. The level sensors can measure using capacitance value. The different levels have a different capacitance value.

The application of water level sensor is to maintain a constant water level to avoid material wastage in the process plant [2]. Besides, the applications also include switching pumps on and off to avoid overflow, dry running and indicating water level in an empty tank to avoid wear and tear and production stoppage.