

**WATER LEVEL CONTROL SYSTEM  
(HARDWARE DEVELOPMENT)**

**Project report is presented in partial fulfillment for the award of the  
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## **ABSTRACT**

Efficient control of water supply is important to ensure efficient distribution of water for industrial, commercial and domestic user. Sufficient level of water pressure required is achieved with the aid of pump. Unlike normal system where pump power supply control depends on the differential pressure switch, the purpose system employs level sensors. The pump will be energised if the water fall below the predetermined lower level limit. Likewise the pump stop when the water has risen to the upper limit. The system avoids unnecessary pump activation due to slight level changes, which can trigger the differential pressure switch in the normal system.

Signal transmission in sensor is flexible. It can be in the form of normal cabling or wireless systems. The latter system is adopted in this work. However it requires a quite complex circuitry which include the transmitter and receiver modules.

In the event of reservoir overflow due to system null function, an alarm unit will be triggered alerting maintenance crew.

Switching and the deswitching is done by SCR as power switching devices. The system performance is analysed using appropriate mathematical model and the true performance is compared against the model outputs.

Future work may involve the stability analysis and its ability of distinguishing the true and false triggering signal.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The basic strategy by which a control system operates is logical and natural. In fact the same basic strategy is employed in living organisms to maintain temperature, fluid flow rate and a host of other biological functions. This is natural process control. The technology of artificial control was first developed using a human as an integral part of the control action [1]. When we learned how to use machines, electronics and computers to replace the human function, the term *automatic control* came into use. An instrument called a sensor is added to measure the temperature or water level and then convert into a proportional signal as input to a machine, electronic circuit or computer that called the controller. This performs the function of human in evaluating the measurement and providing output signal to take action to water-pump or valves.

Some of the terms on control system:

Process – It represent the material equipment together with the physical and chemical operations that occur there.

Controller – this is hardware element that receives the information from the measuring devices and decides what should be taken.

Transducers- many measurements cannot be used for control until they are converted to physical quantities (such as electric voltage or current) which can be transmitted easily. Transducers are used for that purpose.