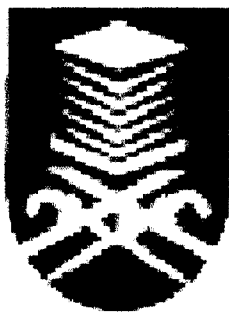


# **WATER MONITORING SYSTEM**

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**In the Name of Allah**

**Most Gracious Most Merciful**

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## **ABSTRACT**

Development of liquid or water flow rate monitoring system and methods of reducing water consumption especially for domestic application has been widely done. But most of the systems that have been design were very expensive and complex.

In this thesis a new project has been devoted in developing a simple and low cost system for monitoring the water or liquid flow rate as well as reducing water consumption. This project is concerned with the development of a flow sensor and displays (7-segment display and LEDs) circuit that was built around the microcontroller PIC 16F84 from Microchip Technology Inc. A control software will be written and download into the microcontroller to operate the circuit.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Water usage often tends to be taken for granted owing to historically cheap and abundant supplies. This is no longer the case because supply and discharge costs have been rising by more than the rate of inflation for some years. Total costs can, in fact, be three times higher than the basic charges when it is include pumping, maintenance, capital depreciation, treatment and the loss of valuable materials. As well as process use, water is widely used for cooling, cleaning, sanitary purposes, steam raising and treating loss of containment [1].

In industry water is used in vast quantities that in sheer tonnage and bulk it far overshadows all other materials. It requires over 250 tons of water to make one ton of steel, over 700 tons to make one ton of paper, over 1200 tons to make one ton of aluminum and so the list could go on and on. For in practically every industry the greatest tonnage of any material used is water [2]. Because of all this facts, the need for monitoring water usage is very important. Water monitoring system can led to reducing water consumption as well as the cost.

### 1.2 Project Overview

Many researches have been done in recent years to the development of liquid or water flow rate monitoring system and methods of reducing water consumption especially for domestic application. Most of the systems that have been design were very expensive and complex therefore not commercially suitable for domestic application [3-4]. As a solution this project has been devoted in developing a simple and low cost system for monitoring the water or liquid flow rate as well as reducing water consumption.