Universiti Teknologi MARA

WALEDS –

Android Based Remote Water Leakage Detection System in Pipeline

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ABSTRACT

The development of Water Leakage Detection System is a solution to all water pipeline to avoid excess water to be waste. This device can alert the owner by sending Short Message Service (SMS) message or email after detecting any water leakage that occur. The owner also can monitor the condition of the pipeline by using mobile apps. An alarm will alert the owner that some section of the pipeline has leak. This project consists of two parts which are hardware design and software development. For hardware design, the system is controlled by an ATmega328 microcontroller which is in Arduino UNO board. The water flow sensor is used as the input of the microcontroller. Global System for Mobile Communication (GSM) is preferred in the wireless communication because due to its effectiveness and use of SMS and real time detection. SMS were used because of the increasing use of mobile phone. For Software development, Arduino Compiler is used to program the microcontroller to enable the function of detecting, monitor and alert indication for detecting the leakage by using SMS, email or mobile apps to the owner.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND STUDY

Water is important things in our life as our bodies are already made of 60% water. We use water mainly on our daily basis such as taking a bath, washing cloth and most of all drinking to avoid dehydration. Water is too precious to us it's like liquid gold to us. We cannot live without water. But even people know water is important there are among those people that did not use it wisely and more water is wasted in an uncontrolled way (Motaz Daadoo, Yousef-Awwad Daraghmi, 2017).

Many ways cause the waste of water, one of the causes that I discover is where leakage in the pipeline. The pipeline is a way to distribute clean water resources in a building. If one of the pipelines have leakage on it will affect the whole building. It was hard to detect any leakage especially if the pipeline is underground or wall.

By using WALEDS we could prevent or avoid more water wastage, more efficient and less time-consuming. The system aims to have better water management and provide a better water supply. WALEDS are put on a highly exposed to leakage where it contains sensors near to the water tanks and microcontroller are required to manage the system.

This system plans to design, manage and develop a wireless, multi-sensor network that could help the detection and monitor the condition of water in the pipeline. When the detection occurs the system will immediately notify the authority people through GSM and SMS