UNIVERSITI TEKNOLOGI MARA

WATER MONITORING SYSTEM FOR WATER DAM WITH IoT

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ABSTRACT

This project presents a water dam monitoring system with IoT. That aims to design water monitoring system for water dam using Arduino Uno that is connected to a Wi-Fi module. With the aid of block diagram, the inputs and outputsfor this project has been determined. This project includes rain sensor and water sensor as the inputs while the LCD, LED, buzzer, and servo motor are the outputs. From the simulation that has been observed, the water level sensor will determine the percentage of water level in the tank then it will display the water level on the LCD. The rain sensor on the other hand will notify the system whether it is raining or not raining. In real time demonstration, the servo motor will turn to open the water gate and the system also will notify the person in charge through Blynk app about the water level and weather at the water dam if the person in charge is not in the office at that moment. It is important to understand the fundamentals and the system of a water dam to avoid from being flood victims. In Malaysia, the weather is unpredictable during the rainy season. Therefore, this monitoring system helps to ease the person in charge on monitoring the water level and water ejection at the water dam.

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INTRODUCTION

1.1 Background

Dam is a manmade structure which is built to hold back water. The structure is built across a river or a stream. Dams were built using materials such as clay or rocks during ancient times. However, in the modern era dams are built using thick layers of concretewhich the materials are easier to obtain and easy to handle during construction.

Civilians in certain locations which uses a water dam as their source of power or water, do not entirely understand how does water dam system functions. This leads to poor preparation for a flood to occur. Moreover, the civilians will face a major loss if they are not well prepared if flooding takes place in the perimeter.

The aim of this project is to reveal the function of a water dam to civilians. This will ensure the civilians understand the function of a water dam and prepare themselves for the rainy season when it has started. Other than that, this project also reveals the relationship between the weather, water tides and the time when the water dam gate opens and closes. The water dam alarm will be triggered whenever the water in the dam has risen to a dangerous level and the water dam gate will open to regulate the water level in the dam. In addition, water dams are not applicable to all locations.

As a result, in this project the monitoring system will improve the prediction of flooding to occur and allows the civilians in the are to evacuate the area with their valuable belongings before flood occurs. The prototype for the water monitoring system proposes the usage of sensors which are water level sensor and rain sensor. The data obtained by the sensors are then displayed on an LCD and on an indicator which is LED. A motor will be used to execute the opening and the closing mechanism of the water gate and a buzzer will be used as an alarm for this system. IoT application is also applied in this system to access data obtained by the sensors through smart devices such as smartphone and tablets. These smart devices needs to be