



**FINAL YEAR PROJECT REPORT  
(EEE368)**

**FLOOD ANALYSIS AND MONITORING  
WITH SMART ALERTING SYSTEM**

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## **ABSTRACT**

Every year, students are doing projects for the final year project (EEE 368). For this year, I have innovated one of the projects that is totally common for the project, which is a flood monitoring system. In this project, I added more sensors to get more data, and the new project for this flood monitoring system is called Flood Analysis and Monitoring with Smart Alerting System. The name of the project already states that this system is designed to monitor and analyse the possible floods that may occur with the alerting systems included in this project. This system using two microcontrollers which can obtain more data given to this project. The data given from this project is water depth which is calculate the depth of the water from the ground, rainfall, speed of water flow, the temperature and humidity of air. All this data is given in real-time data. The project also includes the alerting system, which provides early alerting by giving notifications through the mobile phone. The sound from the project, which is a buzzer, also alerts the system to the warning zone. This system is connected to the Blynk App to monitor all the data from the sensor, which can be analyzed. This will alert the user via notification and give the notification via email that is sent from the Blynk app. Arduino IDE is used to code both microcontrollers, which are Arduino Uno and ESP8266.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND OF STUDY

Among the most damaging natural disasters, floods lead to plenty of property damage, injuries to people, and financial problems throughout the entire world. Effective flood tracking and early notifications are now critical due to the rising frequency and severity of severe weather linked to climate change.

Normal flood detection methods often rely on labor-intensive, time-consuming, and prone to errors inspection and data collection. Also, the absence of real-time gathering and analyzing data capabilities in conventional early warning systems may cause delays in alerting the public and reducing the effects of flooding.

The first invention of this flood monitoring system is in 1854 by Eugene Belgrand that the system is predicting the flood [1]. In Malaysia, the flood detection system used two types of monitoring system which is telemetric rain gauge and the water level station telemetric. In Malaysia, there are roughly 208 telemetric water level stations and 335 telemetric rain gauges installed [2].

In this era, many industries are developing more flood systems, either alerting, detection, or monitoring systems to prevent or early warning for this natural disaster. However, many flood monitoring systems are not put in place for the benefit of the locals; rather, the authorities use them to monitor the situation and notify those who live nearby later. Additionally, the systems are typically installed close to river basins, drains, dikes, and dams.

The invention of the proposed project with adding more sensors is called Flood Analysis and Monitoring with Smart Alerting System. This proposed project creates and puts into place a flood monitoring and analysis system with a smart alerting system. The Arduino Uno and ESP8266 microcontrollers are used by the system to gather data from varied sensors. Real-time

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 PROJECT REVIEW

This chapter will go over previous projects that have been completed. All projects in the flood system were observed and evaluated. Some project-related projects have been reviewed. Some of the projects are similar, while others have different uses and purposes. This chapter reviews and discusses all of the problem projects.

##### 2.1.1 FLOOD MONITORING AND WARNING SYSTEM REVIEW 1

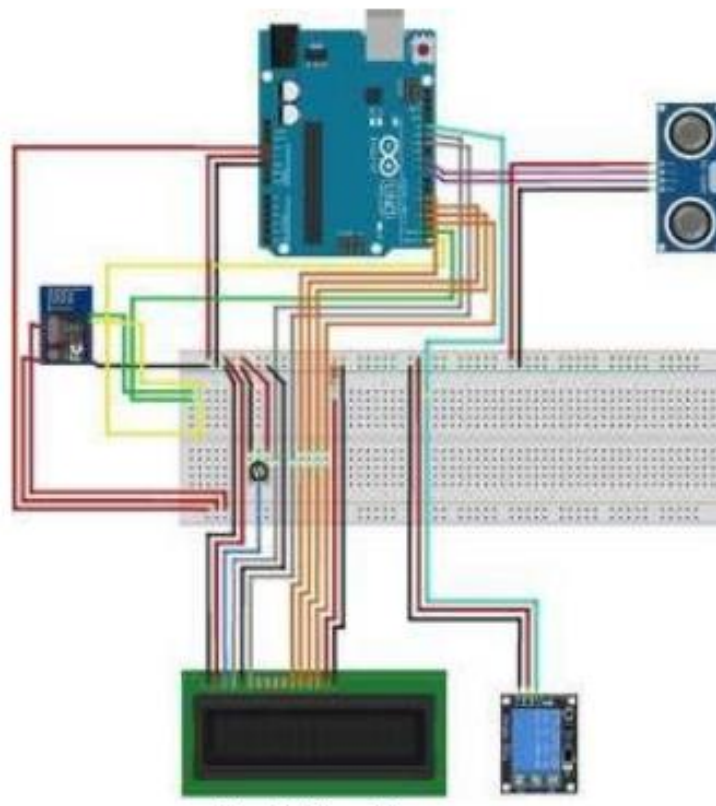


Figure 2.1.1 [3]