

CHAPTER 1

INTRODUCTION

1.1 Background

Kaligarang river, located in Semarang is one of essential clean water resource for the local communities. However, the rapid development of the society and numerous human activities speeded up the contamination and deteriorated the water resources. Water pollution is one of the greatest issue in the world, especially in developing country like Indonesia. Water pollution can be sourced from household waste and industrial waste that is not through adequate treatment (waste water treatment plant). So that, water quality monitoring is necessary to identify any changes in water quality parameters from time-to-time to make sure its safety in real time.

There are several parameters to categorize water as clean water, one of them is the degree of acidity (pH). Good / neutral water quality is in the range of pH 7. Water with pH below 7 is said to be acidic and above 7 is said to be a base. Based on Permenkes (416/MENKES/PER/IX/1990) pH requirement for clean water is 6.5-9.0. While for drinking water the pH should be 6.5 to 8.5.

This project was aimed to ease the process of monitoring the water quality of Kaligarang River by the concept of IoT (Internet of Things). By this system officials can keep track of the levels of acidity in the water bodies and send immediate warnings to the public. This can help in preventing diseases caused due to polluted water. Moreover, it can give education and information to society on how their activities can affect the environment so that we can maintain good habit for sustainable environment. The system will be equipped with other sensors such as ultrasonic, GPS and DHT sensor to give more information of condition of

river. These sensor will generate report about depth of water, device's location, temperature, and PH levels contained in the river.

1.2 Scope

Scope based on the above background :

1. What is the function of IOT (Internet of Things)?
2. How does IOT work?
3. How this project works in monitoring the water quality of Kali-garang river?

Constraints writing in the project:

1. The parameters used in this project are temperature, pH, location, ketinggian air.
2. The modules used in this project are pH value, arduino UNO, ultra-sonic, gps module that require substantial funds in procurement.
3. Difficult track when fetching data.
4. This system is intended for the use of monitoring water quality including river depth, sensor device's location tracking and pH at Kali-garang.
5. Data taken from a less healthy environment.

1.3 Objective

The first objective of the project is to record any relevant changes in water acidity level that affect the environment. The second goal to implement the project that can be easily used by users in participating in monitoring & maintaining the environment.