

CHAPTER 1

INTRODUCTION

1.1) Background

Nowadays, technology has more resilience than old technology, especially in efficiency and flexibility. Through modern technology, we can solve the small problem until the huge problem that cannot be solved by a human. This project will do an experiment to create an embedded system that uses for monitoring temperature in the laboratory of computer science UNIKA Soegijapranata. With this system, it is expected that the data can give the conclusion about the relation of the number of people and room temperature.

This project will install the embedded system in the laboratory to measure the temperature periodically and get the number of people by counting the number of people coming in and people coming out of the laboratory. This project uses Arduino Uno, ESP8266, the Infrared sensor (E18-D80NK), DHT22 for the hardware and the sensors and Ruby, Mysql server, android studio, and MQTT protocol for the software, programming language, and the protocol. Arduino Uno is the main controller to control DHT22, infrared sensors, and send the data through ESP8266 via MQTT protocol. MQTT protocol is used for transferring data to Ruby script and the data will insert into Mysql server. From the Ruby script, it publishes the temperature data and amount of people to application in android.

This project will produce an analysis about the effect of the numbers of people to the temperature in the laboratory and produce the embedded system and an android application that can give information about the temperature and numbers of people in the laboratory at the real-time.

1.2) Scope

Limitation and scope from this project are:

1. How embedded system work in the laboratory to monitor the people and the temperature?
2. How the accuracy of the people calculation in the computer laboratory?
3. How the number of people inside the laboratory affects the room temperature?

1.3) Objective

This system can measure the temperature and count the people inside the laboratory and the data will be published in the MQTT broker and stored it on the MySQL server. All data from the MySQL server will analyze the relation between room temperature and the number of people inside the laboratory.

