

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

In daily life, students from outer cities who live in the boarding house do their activity in the boarding house room like exercising, doing their homework, and many more. But when they leave their room, they can't monitor their room of the room temperature and the movement in the room. And with their daily activities, they forget to scale their body weight. For a long time, they do not scale their body weight and don't know their body weight because they do not have a weight scale and its cost is expensive.

To resolve this problem, we're going to make a device that monitoring of room temperature, movement detection, and weight. With this device, the electricity usage will be less cost using PIR movement sensor, room temperature can be monitored to get the room temperature scale, and weight scale to scale the bodyweight of the students to be able to scale their body weight daily and then the data are stored into the database and can be shown on the website.

This project uses Arduino Uno for the microcontroller, PIR Sensor is used to monitor the movement detection to turn on the lamp, DHT22 sensor will detect current room temperature, weight sensor 100kg + modulo HX711 to calculate weight scale and the data are displayed on the LCD to show the weight scale and current room temperature from DHT22 sensor. From 3 data that are monitored and then processed using Arduino Uno and the result are displayed on the website using ESP8266.

The result of this project is to monitor the usage of room and information data monitoring can be accessed on the website.

## 1.2 Scope

Scopes of this project are :

1. Is temperature sensor DHT22 accurate with digital room temperature?
2. How to get the bodyweight scale using the weight sensor and accurate calibration of the weight sensor?

## 1.3 Objective

The purpose of this project is to create a device that can be monitoring room condition and to calculate body weight scale and the result are displayed on the website.

