CHAPTER 1
INTRODUCTION

1.1 Background

The power supply is the main thing for an electronic device to work. Just like the Arduino Uno board requires a power supply to be able to use. The most common way to turn on Arduino Uno is by using a USB cable. But if the power source from the USB is off then the Arduino Uno will stop functioning, so it needs a tool to switch the main power supply to the backup power supply so Arduino Uno can stay on and work properly. The other problem is wasteful lights and fan consumption will result in swelling of electricity bills. Especially homeowners who forgot to turn off lights and fan or forget to do a timer.

Therefore, the solution to the problems of the topics above, the first topic, there are three ways to turn on the Arduino Uno board, the first through the USB port, the second through the barrel connector, the third through the input pin where the pin is used is the pin 5v or pin VIN (7v-12v) and pin GND. By using this input pin, uninterrupted power supply from the main power supply to the backup power supply can be done with the help of the relay module. Then on the second topic, need a home automation system that can monitor and control the lights and fan. Where the lights and fan is connected to microcontroller like arduino.

Base on the solutions above, by using relays and input pins as switching power supplies, the Arduino Uno will remain on and working from a backup power supply. Then the Arduino power supply status is updated and displayed on Domoticz. The existence of home automation system can also save the lights and fan consumption because it can be controlled and monitored easily.

1.2 Scope

The scope from this project is as follows:

1. Can relay be used for UPS system on Arduino?
2. What manager (home automation) is used for lights and fan controller system?
3. What sensors are used to ensure the lights and fans have been successfully turned on?
4. What protocol is used to send and receive data?

1.3 Objective

By utilizing relay function and home automation system connected to the arduino, MQTT server and Domoticz as its manager, this project can solve the problems mentioned above. On the first topic, this project produce embedded products that can make a switch from a primary power supply to a backup power supply so that the arduino can continue to functionate. On the second topic, with the home automation system this project produce embedded products that can save more lights and fan consumption because it can be controlled and monitored easily.