# Abstract

21st century will become more and more self-controlled and automated. Imagine, in some parts of the world already have its lights and turned on/off automatically and even the monitoring system in their own house. This kind of technology will helps mankind to live a live happily. The purpose of this research was to create a control and monitoring system application that enable the owner of the house to control and monitor some electronic devices.

Works as stand-alone in a medium scale embedded system based on Android OS using Arduino ATMega 2560 as its microcontroller with Bluetooth as its connectivity. The High-level languages which are written in the IDE are C and C++ Language. Android Application as a software of the system is built by using Thunkable App Builder. This app only involves the control of lighting and weather report (such as temperature, humidity and rain rate). The user can control the light either manually or automatically by using the Android application in smartphone. Through the application the user also can know the information about temperature, humidity, and rain rate from the sensors.

Test result shows that the shortest time of DHT11 to response against the changing temperature is 1.12 sec while the longest is 1.25 sec. Then, needs at least 20% of water that covers the raindrop sensor plate surface to change its status. The status will be change to "Heavy Rain" if the plate surface was covered greater than 60%. The average error percentage of DHT11 is 3.5% compares to Room Temperature.

**Keywords:** Home Automation, Embedded System, Weather Reporting System, Arduino, MIT App Inventor 2.