

ABSTRACT

In general, a roof without automation is a roof that is always closed, but if the roof is closed continuously, the inside of the house will get more and more humid; the opposite happens, namely when the roof is open continuously, the excessive heat from the sun will make the inside of the house get hotter out of control. What's more, the always open roof leaves the house unprotected from getting wet when it rains. Therefore, one of the important Smart Home systems is to be able to control the opening and closing of the roof of the house automatically. Based on the problems mentioned above, an automatic roof opening system is needed to protect the house due to erratic weather changes, especially against exposure to sunlight (heat) and rain (wet). In this final project, we design an automation system for opening and closing the roof, the Smart Roof, with the development of a small-scale laboratory miniature combined with the main controller of the system in the form of the Arduino Uno. In this study, it was found that the rain sensor, LDR sensor, and DHT sensor were able to detect the presence of rain, light, and humidity needed by the system to open or close the roof. The sensor values detected to open the roof are rain sensors >600 ADC, DHT sensors <30 C, and LDR sensors > 300 ADC. Meanwhile, to cover the roof, there are rain sensors <600 ADC, DHT sensors >30 C, and LDR sensors <300 ADC. From the results of testing and implementation of the tools made, the percentage of accuracy is 100% from the average test results.

Keywords : Roof, Arduino Uno, Rain Sensor, LDR Sensor, DHT Sensor.