

## **ABSTRACT**

Blood pressure is an indicator of various diseases in the body such as high blood pressure, coronary heart disease, kidney disease, and others, while currently, the public needs help with institutions that have the knowledge related to blood pressure measurement to measure blood pressure. So that people can know and measure blood pressure independently without having to go to the agency that can make measurements, we need a tool that can measure blood pressure automatically and provide measurement statistics so that the public or patient can monitor the state of their blood pressure. To present this tool in this final project will try to integrate digital blood pressure measuring devices with IoT (internet of things) so that it becomes a blood pressure monitoring tool.

Arduino will be used to process MPX5050DP sensor values and NodeMCU is used to connect to the internet so that it can connect to firebase which acts as a database. The measurement results using a blood pressure monitoring tool that we made using the MPX5050DP are not much different from those produced by a digital blood pressure measuring device from Omron. After the results are compared and processed with the relative error equation produces 6.684184% relative error for systole and 8.256346% relative error for diastole. In the end-to-end delay test, it was obtained a delay of 13,843 s for a difference of 1 meter and then 13,928 s for a difference of 5 meters and 14,288 s for a difference of 10 meters.

**Keywords:** Blood Pressure, Internet of Things, Firebase