

## **ABSTRACT**

*This final project focuses on analyzing the performance of the communication system between the PLC and the Raspberry Pi using 2 protocols, namely the Modbus protocol and the FINS protocol. This performance analysis covers the effect of baudrate on the process of searching for devices, reading data, and writing data commands as well as comparing 2 protocols from the effect of a lot of memory data on the processing time of the Raspberry Pi in reading data and writing data commands. In sending data to Antares, performance analysis will also be carried out in terms of the influence of the amount of memory data on data transmission: (i) Analyzing the performance of each device in the design of the tool during the process of searching for devices, reading data, and writing data commands. (ii) Analyzing the performance of the processing time of reading data and writing data commands by Raspberry Pi with the effect of the amount of memory data (iii) Analyzing the performance of data transmission speed to ANTARES on the effect of the amount of memory data with speed upload a stable internet using LAN.*

*The results of this final project are expected to help consumers who need the results of the analysis of the performance of PLC communication to the Raspberry Pi who need the devices best from all aspects to be tested in this final project and also make monitoring easier because they are connected directly to ANTARES for the database.*

*The tests that have been carried out will analyze the performance of each device used, namely Siemens S7-200, Omron CP1L and Omron CP1H against predetermined parameters. The results of the performance analysis have been finalized and the most optimal device in the processing time of each predetermined parameter is the Omron CP1L device. The device uses the FINS protocol which draws the conclusion that the protocol is superior to the Modbus protocol.*

*Keywords: PLC, MODBUS, FINS, IoT, Raspberry Pi, Cloud, ANTARES*