ABSTRACT

Train is one of the mass public transportation that is developing in Indonesia. Trains have the advantage in terms of travel cost efficiency and high levels of security which have been continuously developed until now. The security system on a train is commonly called an interlocking system, this system is a system that functions as a field monitor, railroad guard, and a regulator for the train entry and exit at certain stations.

The control media commonly used today is a single control media, this makes the redundancy system not used optimally and does not rule out failure in the control system room. Therefore, it is necessary to provide additional control media in order to compare data using redundancy. Currently, railroad signaling uses software redundancy and hardware redundancy.

The redundancy system carried out in this final project is hardware redundancy where there are devices that can be used as backups of the primary unit when there is a failure in sending data. This redundancy is implemented in the PLC using the warm standby redundancy method, the distance between the point motors in a miniature train journey takes 3.4 seconds to pass through the engineered point motor. So that the warm standby redundancy must meet the switchover ≤ 3,4 seconds. Then in this test the switchover manages to meet the time between 0.295 seconds to 0.31 seconds. From this data, it can be concluded that the warm standby method can be implemented in miniature trains.

***Keywords**: Redundancy System, Interlocking System, Railway signaling system, Standby Sparing, Warm Standby*