

## ***ABSTRACT***

*At present the use of control systems is needed in the industrial world, especially in the manufacturing industry. A growing control system improves system performance and production quality.*

*In this Final Project will explain simulator design Hardware in the loop simulator (HIL) for rapid testing of control system prototyping. The HIL simulator is an attempt to design a system that can be tested, this system will be entered into the value of the first order transfer function and analyzed the system response to the given setpoint.*

*The design of the HIL is intended to prevent failure of the actual system. HIL simulation is done using Labview software. The data transfer communication protocol uses Arduino Uno which is connected to the NI USB-6008 device in real time.*

*In testing the HIL simulator for rapid prototyping of control systems, the input was analyzed in the virtual Labview and input to the hardware using a potentiometer, from the analysis that had been done, compared and then analyzed and obtained an average value of 88% when 1.4 seconds.*

***Keywords:*** HIL, Data Acquisiton, Control System, Labview