ABSTARCT

Control the water level and temperature in the boiler is a very important component . Instability in one of these components can cause system failure , resulting in damage to the boiler . Therefore it takes automatic control techniques to regulate the water level and temperature in the boiler .PID method used to control the temperature of the boiler by using a thermocouple sensor as a temperature sensor with electric heater as actuator. On-off controller is used to control the boiler level . Sensors are used to detect the level of water is conductive sensor with DC water pump KF-2203 as the actuator .

All the action will be processed on the Labview interfaced with Arduino. Based on the experiment the accuration of temperature control is 99.2% by using PID paramater Kp=19, Td=23, Ti=120 with 1% overshoot. On-Off controller work properly with 12 cm setpoint and 8 cm minimum point, Ton=105 s, Toff= 3956s.

Keyword: *Boiler*, PID, Arduino, *Heater Electric*, Water Pump, *On-Off*