DESIGN CONTROL HEIGHT WATER AND STEAM TEMPERATURE IN STEAM BOILER DRUM SYSTEM BY SLIDING MODE CONTROL (SMC)

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In a steam power system, which play an important role is a boiler. Steam boiler drum is a drum serves to separate the fluid between the gas phase and liquid phase. Its presence in a boiler system is very important. Controlled variables in a Steam boiler drum is the height water and steam temperature. In the Steam boiler drum has a nonlinear dynamics model and has many uncertainties. Common problems frequently faced nonlinear control systems is the emergence of uncertain disturbances originating from inside or outside the system and the parameters are not constant. To improve performance system, used one method that gets many attention is Sliding Mode Control (SMC). In this final project, designed a control system using static and dynamic SMC which is a type of controller methods that existed at the SMC. Applied to a system to replace the steam boiler drum control system. SMC is one of control method is very robust, so it can work well on systems that have a model or parameter uncertainty.

From the research we concluded that the design of static and dynamic SMC in the steam boiler drum can be applied to control the height water and steam temperature. In general, the dynamic SMC is more robust controllers against external disturbances both small and big value, as well as to reduce or enlarge parameters compared with the static SMC. Similarly, the dynamic SMC has error is smaller and has a response faster than static SMC. However, besides having the advantages, there are
also weaknesses in the method of dynamic SMC controller design
difficulty level higher than the static SMC.

**Key Words:** *Sliding Mode Control (SMC), steam boiler drum,*
*height water, steam temperature.*