ABSTRACT

Adaptive System is designed to be able to make adaptation with environment that change the parameters of plant. Adaptive control is a technical control where this control is expected to be able to change parameters / control law according to changed parameter process control.. Adjustable mechanism in adaptive control cause the system can adapt with changed parameters in plant.

In this final project, adaptive control will be applied for controlling dc motor in escalator simulation. The rotation of dc motor is controlled with dynamic load. In this case common controller cannot controlling dc motor, because the variable value from dc motor not known and unpredictable caused environment is changed. To solve the problem in this case, so choose the MRAS (Model Reference Adaptive System) for controlling dc motor. In this model, performance of feedback is resulted from plant model manipulation. So first will be made a dc motor model, then set point value is given to model. The dc motor is given the power according to speed that to be want, then give the dynamic load. The output from dc motor and model is compared and result the error. The error value will be calculated with PLC (Programmable Logic Controller) as a controller. In PLC programming also applied the adjustment mechanism algorithm, so the dc motor will rotate with output value like the model. In this process the difference value of plant output and model will make minimum, so the dc motor speed is constant.

Keyword : Model-Reference Adaptive System, Plant, Set Point, Performance Feedback, Programmable Logic Contoller