Rancang bangun prototipe sistem aktuator sendali sirip menggunakan labVIEW = Development of fin control actuator system using labVIEW

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Abstrak

Prototipe sistem aktuator kendali sirip berbasis LabVIEW telah didesain dan dibuat. Sistem ini terdiri dari brushed DC motor, planetary gear, bevel gear, sensor rotasi dan perangkat lunak LabVIEW yang dipasang di komputer. Sistem ini dipergunakan untuk mengendalikan sudut putaran sirip. Kendali PID dipergunakan dalam sistem ini yang ditanamkan dalam mikrokontroler ATmega8538 dengan nilai Kp = 0.0037, Ki = 0.000022, dan Kd = 0.14985. Sudut referensi diberikan melalui LabVIEW dan diumpankan ke mikrokontroler melalui komunikasi serial. Dari hasil pengujian sistem diperoleh Tr = 0.42, Tp = 0.675, Ts = 0.8125, %OS = 5.375% dan steady state error = 14.75%.

.....Prototype of fin control actuator system based on LabVIEW has been designed and built. System consist of brushed DC motor, planetary gear, bevel gear, fin, electronic driver circuit, microcontroller, rotary sensor and software LabVIEW that installed in computers. The system is used to regulate fin angular position. PID control has been explored and embedded in microcontroller Atmega8535 with the value of Kp = 0.0037, Ki = 0.000022, and Kd = 0.14985. Angular position reference has been set in LabVIEW and fed to microcontroller via serial communication. From system testing result, it has shown Tr = 0.42, Tp = 0.675, Ts = 0.8125, %OS = 5.375% and steady state error = 14.75%.