ABSTRACT

Two wheeled vehicle is the most populer transportation in Indonesia. It has high fuel efficiency but it has lack in balance control. To cope with that problem, I've designed a two wheeled vehicle that can maintain the balance automatically using fuzzy logic control methods.

The prototipe has been made using fuzzy logic control method. This method has been choosen because of the output's fuzziness variabel that determine servo's position, so the plan stay endlong. Microcontroler STM32F4 is used because it has 168MHZ of clock. Checking prosses can be done in under 500ms and the output for servos is appropriate. Accelerometer sensor be used as tilt sensor and systems feedback.

Sistem telah mampu menghasilkan momentum sudut sebesar 0,92 Kgm^2s^{-1} dengan kecepatan 13800 rpm. Sistem telah berhasil mempertahankan kestabilan posisinya hingga kemiringan ± 5^o dan beban maksimum yang mampu diterima oleh sistem adalah 50 gram.

Systems can generate 0,92 $Kgm^2s^{-1}$of angular momentum with 13800 rpm of angular velocity. T*he systems can maintain its tilt position until ± 5^o and maximum load that can be handled is 50 grams.*

Keywords*: fuzzy logic, gyroscope, microcontroller* STM32F4*, balance control.*