ABSTRACT

The development of technology has grown so rapidly over the generations. One is personal vehicles such as the Segway Personal Transpoter. The vehicle balance can reduce energy consumption and can be a solution of environmentally friendly vehicles. Vehicle balance (Balance Self Vehicle) is a vehicle that has two wheels, on the right and left as a crutch balance. Self Balance Vehicle controlled using fuzzy logic control system controller, so the Self Balance Vehicle can stand flat horizontal equilibrium field.

In this research to design a vehicle balance (Balance Self Vehicle) by using fuzzy logic controller. In a system built using IMU sensor as an input and output of the DC motor as the microcontroller. Inertial measurement unit (IMU) to measure the acceleration of dynamic and static at the same time measuring the orientation angle of the vehicle balance, as well as to obtain data readout is stable and reliable. The method used is a fuzzy logic controller as a controller of vehicle balance.

After getting the value of sensor readings, the data will be processed using fuzzy logic methods to set direction and speed, so that the vehicle system this balance can stand upright on the position of the imbalance. From the experimental results obtained value of sensor readings using a Kalman filter is the optimal Q_accelerometer = 0.001: Q_gyroscope = 0.003 and R_pengukuran = 0.03.

Keywords : *self-balacing control, fuzzy logic, Self Balancing,segway*