ABSTRACT

Guitar is one of musical instruments which many played. Good guitar is guitar that has a harmonious tone. Harmonize guitar tones include hearing the generated tone and turning the tuning machine on guitar. For the layman, this process is very difficult. Fast, slow, easy and difficult depending on someone skill to recognize the tones in each string.

In this Final Project, a guitar tuner prototype was designed by using the Fuzzy Logic method based on microcontroller and a DC servo motor to rotate tuning machine on the guitar. The device compares input from each string with the fundamental frequency of each string. If the two frequencies are not have the same value, then the motor will rotate the tuning machines to the appropriate frequency obtained. Fuzzy logic is used to control motor that tuning machine rotating process more accurate and faster. This process will be run in real-time.

Advantage of this device when compared with other guitar tuner that has been commonly used is automatic tuning machine rotatitng. With this device, setting guitar tone will run easily and faster for anyone. Implementation of this guitar tuner system on microcontroller will produce a device that can work in real time with an error tolerance of 2,893%.

Keyword : Fuzzy Logic, real-time, tuning machine, DC servo motor, guitar tuner.