ABSTRACT

The guitar is a musical instrument that is very popular worldwide. We can meet all walks of life to know and play this instrument. To produce harmonious and appropriate tone, the strings on the guitar requires tuning is good. Unfortunately, this is one problem that is quite complicated, especially for beginners. Hearing because it takes a very accurate and precise to state whether the tones in the strings are accurate or are not accurate.

At the end of this task, the authors designed a prototype-based microcontrollers are supported cable jack, serves as a communication tool incoming analog signal, so it can be processed in the microcontroller. The guitar signal is used as input that serves as the sender of the incoming signal and servo motors as output that serves as an automatic tuner on the strings of a guitar. Focuses on the design process of the preparation of blocks guitar tuner system is capable of calculating and comparing the magnitude of the frequency of the incoming signal and the signal out, in this case the signal from the passage of guitar strings, resulting in a corresponding tuner performance in general.

Obtained from the implementation of this system produces a guitar tuner that is capable of running in real-time with the specified time range for each guitar string with an average error 1,55%.

Keyword- Guitar, frequency, real time, PID, servo motor, tuning.