# Synopsis

The **Guitar Tuner 51** will allow tuning of standard 6-string Electric and Acoustic Guitars. The main aim of this project is development of a module that will take analogue input from a microphone or a 6.35mm audio jack and compare the incoming sound frequency with a set of six frequencies, and in turn will tell the user whether to tighten the respective guitar string higher or lower.

The project will use:

* The 8051 microcontroller for all the data processing
* LCD display and a set of five LEDs for visual output
* Analog to Digital Converter to convert the incoming sound signals
* Microphone
* 6.35mm audio jack input
* Switchboard
* Speaker

Standard Tuning, the most popular tuning on a 6-string guitar, is as follows:

|  |  |  |
| --- | --- | --- |
| **String #** | **Note** | **Frequency (Hz)** |
| 1 (Highest) | E | 329.6 |
| 2 | B | 246.9 |
| 3 | G | 196.0 |
| 4 | D | 146.8 |
| 5 | A | 110.0 |
| 6 (Lowest) | E | 82.4 |

Following is a diagram that depicts how the guitar tuner will work:

Sound Input

ADC

8051

Note Selector Switches

Output (LCD/LEDs)