Self Tuning Stringed Instrument

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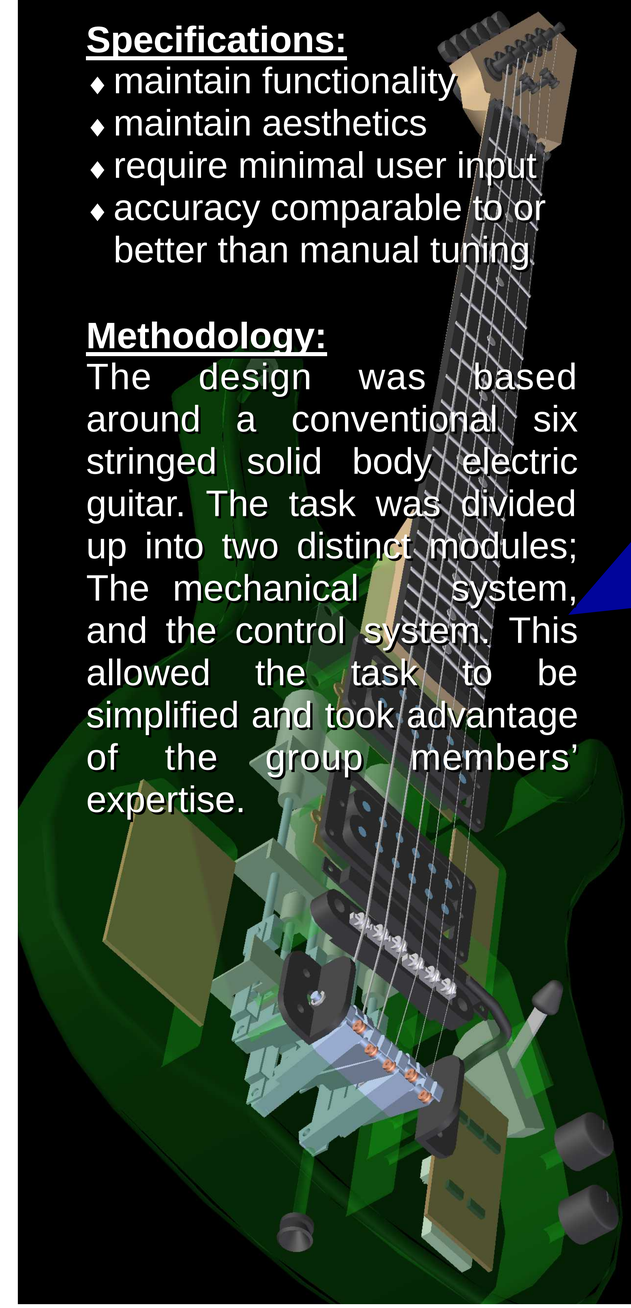
Aims:
To design and build a stringed instrument capable of tuning itself

Specifications:
- maintain functionality
- maintain aesthetics
- require minimal user input
- accuracy comparable to or better than manual tuning

Methodology:
The design was based around a conventional six stringed solid body electric guitar. The task was divided up into two distinct modules; The mechanical system, and the control system. This allowed the task to be simplified and took advantage of the group members' expertise.



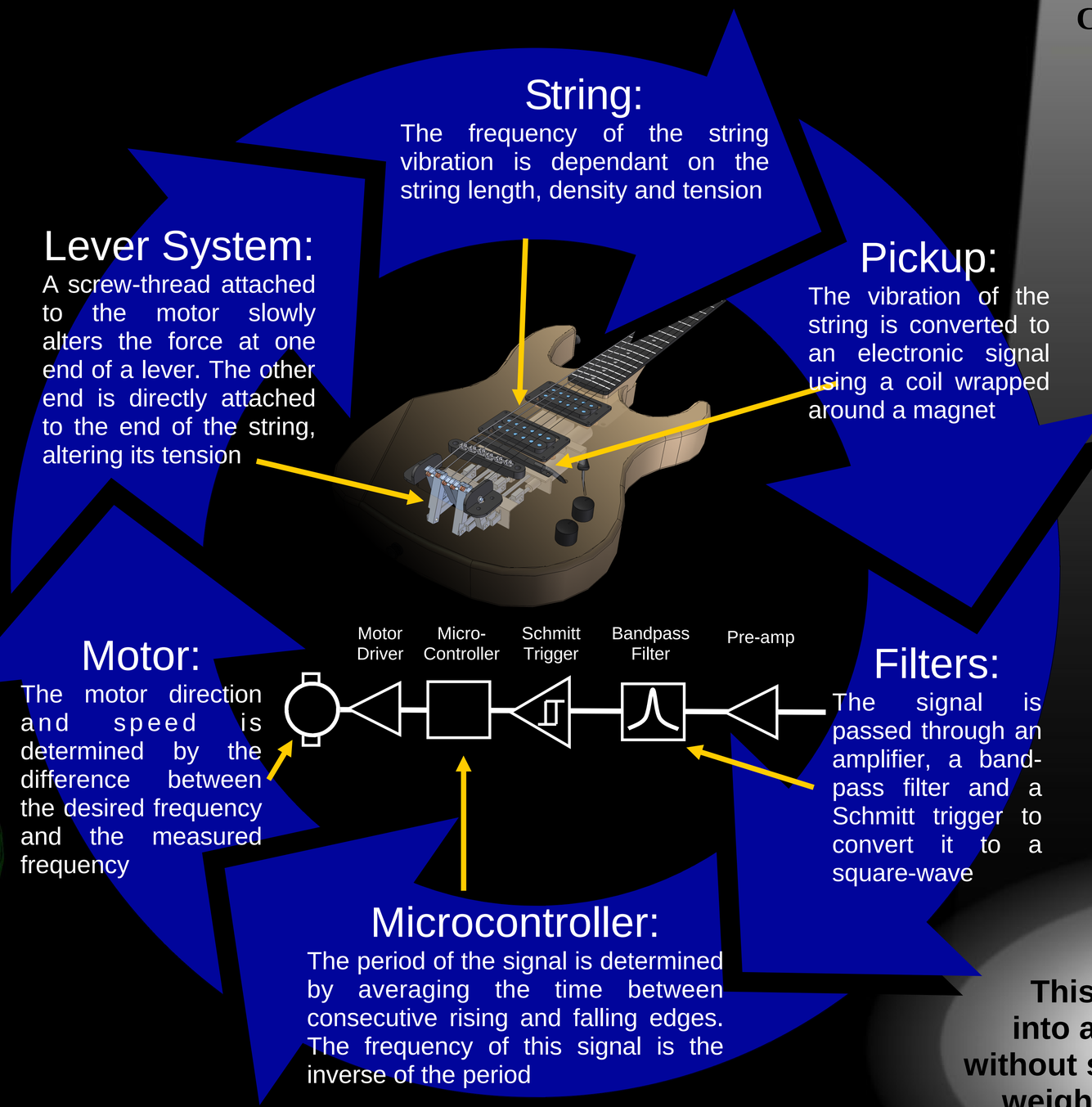


Figure 1: Closed Loop Control System

Results:
Under normal playing conditions, the system was able to simultaneously tune each string with an accuracy of +/- 5% of a semitone, within 10 seconds

Future Work:
- adapt system to cater for alternate tunings
- develop a system to automatically resonate strings
- apply to different stringed instruments

Conclusion:
This system can be easily fitted into a conventional electric guitar, without significantly altering its size and weight. Such a system would be an asset to any stage performer