PROJECT PROPOSAL

HEXATUNE

Submitted by

Nam Math Puch Na

Team members:

Kalmesh
Lakshman
Tejaswini
Rahul
Manoj
Praveen
Ravi

Objectives

- The Hexatone Musical Instrument is an engaging and innovative project which combines engineering Wonder with that of a musical instrument to form an eye-catching performance piece. Develop a musical instrument where multiple guitars are integrated which are distinctive tunes for each guitar. These instruments will be operated using servos which are automated **in a synchronised way to give a smooth and soulful music experience.**

Technical Specifications

Any musical instrument will be generating sound through waves which needs a medium to amplify the sound where the body of instruments will come where careful design consideration need to be taken and coming to this project, Guitar will be the source of sound and the pitch, rhythm and tones generated will depend on the body of the guitar and strings used in it.

Here we will be using,

- **Instrument type:**
    Guitar
- **Material will be used for body of guitars:**
    1. 4mm & 10mm MDF
    2. Plywood
    3. Coated strings
- **Sound generation method :**
     Acoustic Music
- **Number of strings:**
    2 per guitar and 6 guitars will be integrated into the instrument
- **Automation:**
    1. 4 servos to control guitars position
    2. Arduino Uno for automating the servo motion
- **Electronics:**
    1. Low Rpm Dc motor
    2. Speed Regulator
    3. Power Transformer

Features

In this instrument, multiple guitars are controlled and automated to play simultaneously which generate a synchronous soulful music.

Design and Engineering Concepts

- We will be using guitars with different tone strings so harmony will be of very high quality in the music generated.The guitars are arranged in a circular pattern and disc attached with the plectrum is mounted onto the motors driving shaft.

- This will be an automated musical instrument where the guitars are linked in a way to be played simultaneously and servos are used for positioning the guitars for plectrum to touch strings.
- The Arduino is used for controlling the servo moment such that the guitars position will be changed to generate a smooth tune.
- A motor speed regulator is also used to have a variable step speed for the DC motor such that, the Tempo of music can be altered.

Budget estimates

- Material and component cost : Rs16,000/-
- Buffer cost   : Rs 2000/-
- Gross cost   : Rs 18,000/-