

Projects for EEE 316 (Microprocessor and Interfacing Sessional)

This is a list of the projects that will be assigned to each group of the EEE 316 course. All groups of A1-C2 will be assigned similar projects.

1. Develop a chromatic digital tuner for musical instruments using microcontroller. The tuner should input audio signal from a microphone and automatically detect which note is being played and how approximately how much flat or sharp the note is.
(Helpful reference: Electronic Tuner in Wikipedia, Music Pitch in Wikipedia, Example implementation: Example of Electronic Tuner in Youtube)
2. Develop a USB PC shutdown system - the system will be a USB powered device that would check whether the main power supply is okay. If the power supply is gone for 2 minutes (Computer running on UPS), the device will send command via USB to shut down the computer.
(Helpful reference: USB PC Shutdown System)
3. Develop a USB based logic analyzer that will have 16 Channels. The output will be shown in Computer monitor.
(Helpful reference: USB Based Logic Analyzer or Logic Analyzer in Wikipedia)
4. Develop a voice recorder that can record 2 seconds of voice data, then play back the recorded data through a speaker.
(Helpful reference: Voice Recorder)
5. Develop a IR receiver using microcontroller that can be operated through any standard TV remote control, and it can send command to PC.
(Helpful reference: IR Receiver)
6. Using microcontroller Develop a BJT tester. The tester should automatically detect the Emitter, Base and Collector terminal of the BJT and display whether the BJT is n-type or p-type, also display its h_{fe} .
7. Develop a LED matrix based display that can display 16x16 gray scale image. The 5 images will be stored into the microcontroller memory, and user will be able to choose the display image using a key.
(Gray scale image)
8. Develop a game of snake using microcontroller, to be played as single player.
(Helpful reference: Snake Game in Wikipedia)

Project grading criteria:

Designing- 20

Originality and Innovative Idea - 15

Successfully making a working prototype - 10

Designing a PCB for implementing the project - 10

Implementing Project in PCB - 10

Preparing a 8.00 minutes video demonstration of the project - 25

A4 page report (excluding topsheet, explaining design principle and individual contribution by group members) - 10

(The grading criteria may vary for different groups. Exceeding time limit of video or page limit of the report will be penalized)