

Verilog Guitar Multi-Effects Processor

6.111 FINAL PROJECT ABSTRACT – HARIS BRKIC

Most guitarists try to create and imitate the guitar tone of the song they are trying to play. To achieve this they might need a large variety of analog pedals that are very expensive. To avoid this they could use a digital multi-effects board, but such boards are also quite expensive.

The goal of this project is to simulate the behavior of analog pedals using digital signal processing to create the digital equivalents of a large variety of pedals used by guitarists. By doing so, we will create a significantly cheaper version of a multi-effects board that can be controlled from our labkit. Besides this, we will implement a graphical representation of the pedal board to see what pedals are currently being used and what parameters they are set to.

The base functionality of our processor will be simulating the distortion, overdrive and delay pedals. Further goals will include making octaver, phaser, flanger, pitch shifter pedals and a looping function. Using these pedals, we should be able to imitate most guitar tones ever used or to create our own unique sound.