

Soundrino 3200

THE ULTIMATE LASER INSTRUMENT

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Introduction

The goal of project Soundrino was to make an instrument that is played by moving a hand between of lasers and sensors (figure 1). Soundrino has four horizontal lasers, that could be imagined as "strings" like a guitar has, and eight vertical lasers that are like the "frets".

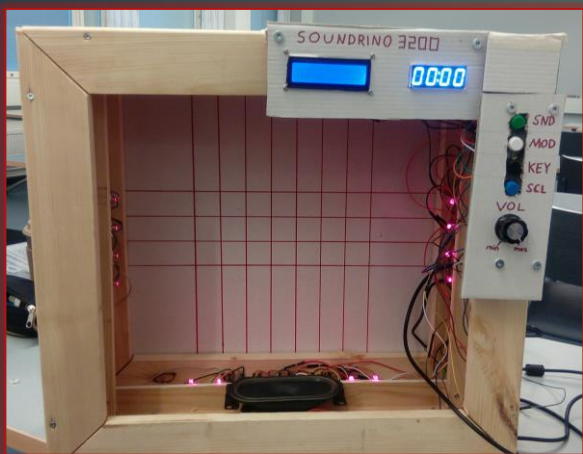


FIGURE 1. Finished Soundrino 3200

Objectives

The objective of the Soundrino was to make an instrument that makes a specific sound depending on where you place your hand or finger. Player can choose between three modes: Play, Record or Playback. Play mode is for just playing. Record mode is used to record what is played and the 4-digit display shows the recording time. Playback mode plays the recorded music. Player can choose between all the musical keys and also between the major or minor scale. Different modes for sound could be chosen, for example guitar or piano. The chosen mode, key and the scale are showed in the LCD-display. (figure 2.)



FIGURE 2. Display panel.

Methods

Arduino Mega 2560 was used as the brain of the Soundrino. Detection is done by sensors that detect the lasers on the opposite side of the Soundrino and they give a signal if the connection is lost. Arduino was coded to send a specific signal to the speaker depending on which sensors are not connected anymore. Arduino IDE was used in the coding of the project.

Results

The project was mostly successful in producing a functioning instrument that was planned. The three modes are working properly and also the key and scale can be changed as needed. Playing multiple sounds at the same time and the different sound modes were not working completely as planned due to memory restrictions in the Arduino. Simplified example of playing chords was done to show what could have been done, if the ordered sd-card reader would have arrived.

Conclusion

The project Soundrino was a great learning experience for the group and all in all a successful project. The last prototype for the Soundrino was working properly and also looking good.



FIGURE 3. Control panel.