

GESTURE DRIVEN MUSIC GENERATION

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Music is an important tool that can aid people of multiple demographics. It is an integral part of social life and is often closely associated with human emotions. Music has cognitive advantages, aiding memory, and learning. According to studies, playing music can enhance memory, mood, sleep quality and reduce discomfort. The aim of this project is to develop an electronic based musical instrument. This instrument consists of motion sensors such as accelerometer and flex sensors which work in conjunction to analyze the position of the user's hand and detect the bending of their fingers respectively. This data is then converted into a musical note. The instrument employs an Arduino Uno board, sending musical instructions via serial communication in JSON format to a local Python script utilizing the Pygame package for audio generation. While a Raspberry Pi Pico board would offer lower latency and better performance, the use of the Arduino Uno board in this basic prototype allows for initial exploration and development. This initiative aims to make music a welcoming and enriching experience for all, fostering a sense of unity, creativity, and wellness in the music world. By embracing music's universal language and promoting inclusivity and innovation, we strive to create a more enjoyable and accessible musical community.