PIANO BOX

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ABSTRACT

This project is designed for act as a real piano but with enhancement of LED light. The LED light will light up every time a note is played. Each note has its own LED. This piano that we create is a smaller version of a real piano where it has an octave of 14 keys and lighter than a real piano. So, it is easier for the user to carry the piano anywhere the user want whether it is a party, class, leisure or vacation. The name of this project is Piano Box because we designed it to be in a box. So that it is easy to be carried. It can also be as a camouflage to prevent the small children from playing and from burglar to steal it. The piano box is easy to be tidied up after being played as we only have to close it with the box cover. The keys are made of aluminium foil which acts as a capacitive sensor and it controlled by Arduino Mega. The advantage we use Arduino is a hardware platform already has the power and reset circuitry setup as well as circuitry to program and communicate with the microcontroller over USB. This is easy to handle the programming, if the user want to change the sound of piano they can change the programming easily. The piano also can be play without any wire because a power source has already connected to the piano box. The problem statement for this project is how people can play piano anywhere they like. The objective for this piano box is to make a simple and light and lower cost piano. So people that like to release tension with playing piano can bring piano anywhere they like with the small size of piano and easy to be carry. The simulation for this piano box is using Arduino software and Proteus. This piano box where success as we expect.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND STUDY

Piano box is a paper box that when the covers opens up, the sides will fall down and it will reveals a 15 key touch piano with some cool LED action. The piano box is built around an Arduino Mega board running the Capacitive Sensor libraries, and features capacitive keys made from paper-covered aluminium foil. Each sensor was connected to the Arduino Mega microcontroller, and in turn mapped to LED lights. The piano box makes use of five of the six available hardware timers to allow up to five tones to be played simultaneously. The piano box is supplied with 9 volt battery. If the battery dies, it can be connected to the power bank or other power supply through the Arduino cable.