User

Manual

The Paint Caddy/Sound Prompt Kit

Art Tools Project
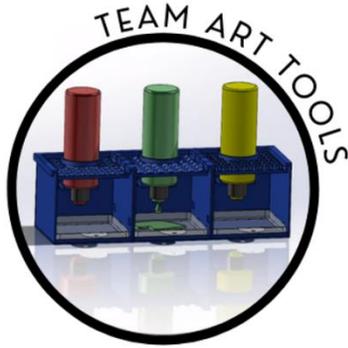
Prepared by: Alex Avila, Tong Chu, and Isaac Okesanya

May 2021

KU SCHOOL OF ENGINEERING
The University of Kansas

Joco
Developmental Supports

	User's Manual Authorization Memorandum

I have carefully assessed the User's Manual for The Paint Caddy and Sound Prompt Kit. This document has been completed in accordance with the requirements of University of Kansas School of Engineering.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

Yes The document is accepted.

_____ The document is accepted pending the changes noted.

_____ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

_Alex Avila_____   __5/10/2021_____
NAME   DATE
Team Leader

_Tong Chu_____   __5/10/2021_____
NAME   DATE
Team Member

_Isaac Okesanya_____   __5/10/2021_____
NAME   DATE
Team Member

USER'S MANUAL

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1.0   GENERAL INFORMATION

A.   GENERAL INFORMATION

1.1 Acknowledgements

The members of Team Art Tools would like to thank the following parties:

We would like to thank Professor Thomas DeAgostino and Dr. Kenneth Fischer for their expertise, guidance, and continued support. With their advice, the development of this project was able to proceed at an efficient rate.

Team Art Tools would like to also thank Johnson County Developmental Supports for providing this project. Their open communication and feedback were crucial in the development of the devices that were created.

The University of Kansas School of Engineering is also owed a thank you for providing us the opportunity to work on projects that impact the lives of everyone involved.

1.2 Acronyms and Abbreviations

KU: University of Kansas
BREAK: Biomechanical Rehabilitation Engineering Advancement in Kansas
JCDS: Johnson County Developmental Supports

1.3 System Overview

An assistive art device for visually impaired individuals:

For many artists with visual impairments, painting is an activity that relies heavily on the assistance of a helper. Currently, there are devices that are used to help in this area, however improvements to these devices can be made. JCDS, in partnership with BREAK, commissioned the construction of a device that would not only help a visually impaired person paint, but also offer them independence when painting.

1.4   Project References

1.4.1 Sound Kit User Manuals

- o   Mp3_Player_User_Manual
- o   Speaker_User_Manual

1.4.2 Paint Caddy CAD Drawings

- o   Drawing_Package

1.4.3 List of Suppliers

- o   Art_Tools_BoM

1.5   Points of Contact

KU Faculty

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2.0   SYSTEM SUMMARY

B.   SYSTEM SUMMARY

Contained within this project are two parts: the Paint Caddy and the Sound Prompt Kit.

Paint Caddy:

This is a modular system that currently contains three modules with the possibility for more. Each module holds a standard 8oz. paint bottle upside down so that the paint can be squeezed into removable tray below. The surface that the bottle fits into has a unique texture to denote the color of the paint. Each bottle is fitted with a leak-proof, air-tight lid. These modules can be fit together for a minimum assembly of three modules.

Sound Prompt Kit:

The sound prompt kit consists of an MP3 player and a small speaker. A micro SD card that holds the Sound Prompt Track is inserted into the MP3 Player. The track is a 30 minute-long loop prompting the user to add paint to the brush, pick a new color, and pick a new brush at varying intervals.

3.0   Sound Prompt Kit

3.0 Getting Started

C.   SOUND PROMPT KIT

This section provides an overview of the setup and use of the sound prompt device.

3.1   Setup & Use

1) Charge both speaker and MP3 player using the provided charging cables
2) Attach the speaker to the MP3 player and turn on using the center button on the bottom
3) Turn on the MP3 player by pressing and holding the center button until the light-up display turns on
4) To find the uploaded track, scroll to the side by pushing the right or left button until the icon for SD Card is visible.
5) Scroll down to "Songs" and click on the first track
6) When finished, turn off speaker by pressing on the bottom center button, and the center button of the MP3 player. The two devices can then be stored attached together or separately.

3.2   Troubleshooting

For troubleshooting, see MP3 Player Manual or Speaker Manual included in the provided USB drive

3.3 Future Work

Tracks were made using Audacity, a sound mixing software. New tracks can be made using it by copying the portion of the tracks that are desirable and pasting them in a new track. The new track must be exported as a WAV file, titled, and then added to the micro SD card. An SD card adapter is required and included. Take the micro SD card out of the MP3 player and slide into the SD card adapter and plug into a computer. Then add the desired track to the Music folder on the SD card.

4.0   Paint Caddy

D.   PAINT CADDY
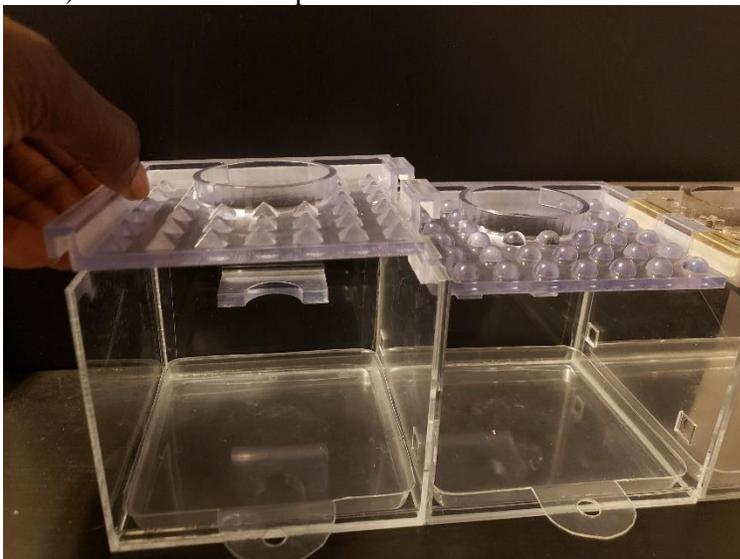
This section provides an overview of the setup of the paint caddy device.
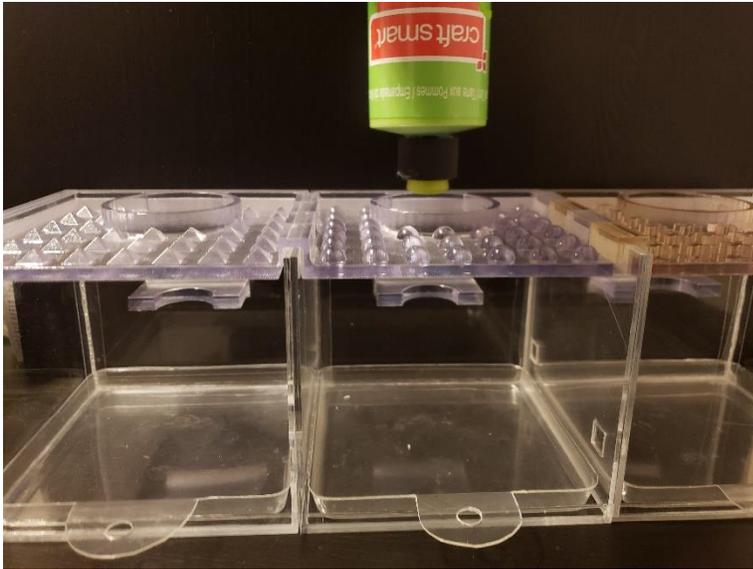
4.1   Setup & Use

1) Connect the modules if stored separately

2) Place textured top onto module wall

3) Fit the paint bottles into the tops of each module

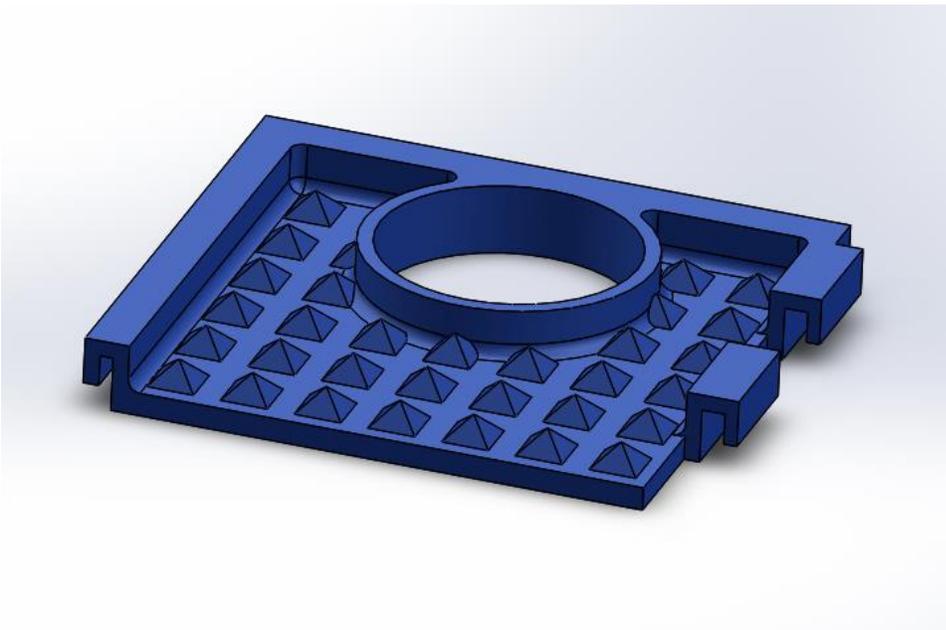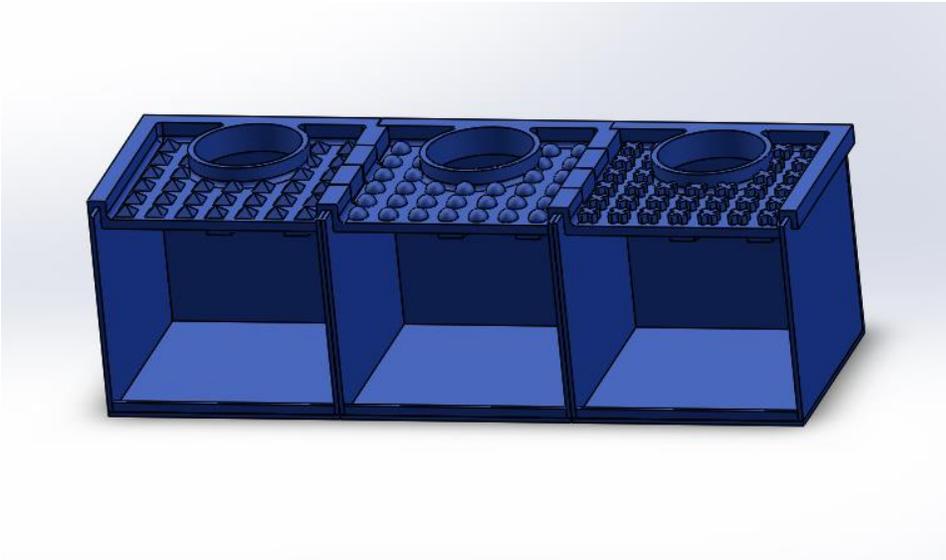4) Feel textured top to differentiate different colors
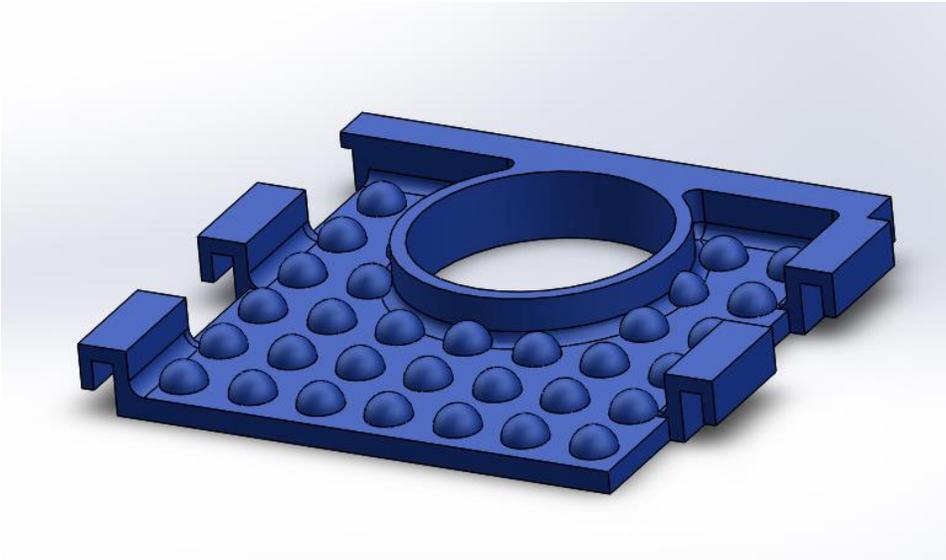

5) Squeeze desired paint into trays
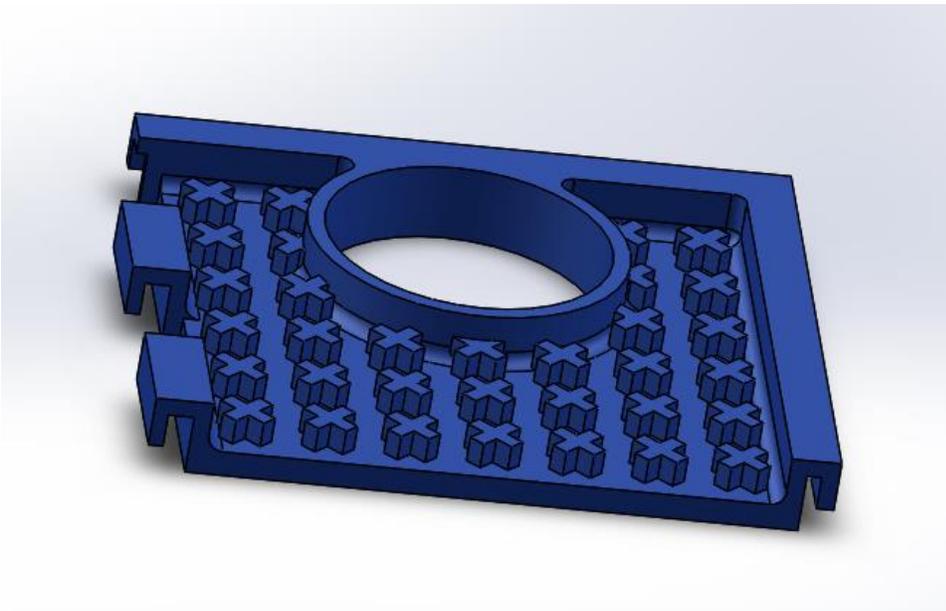
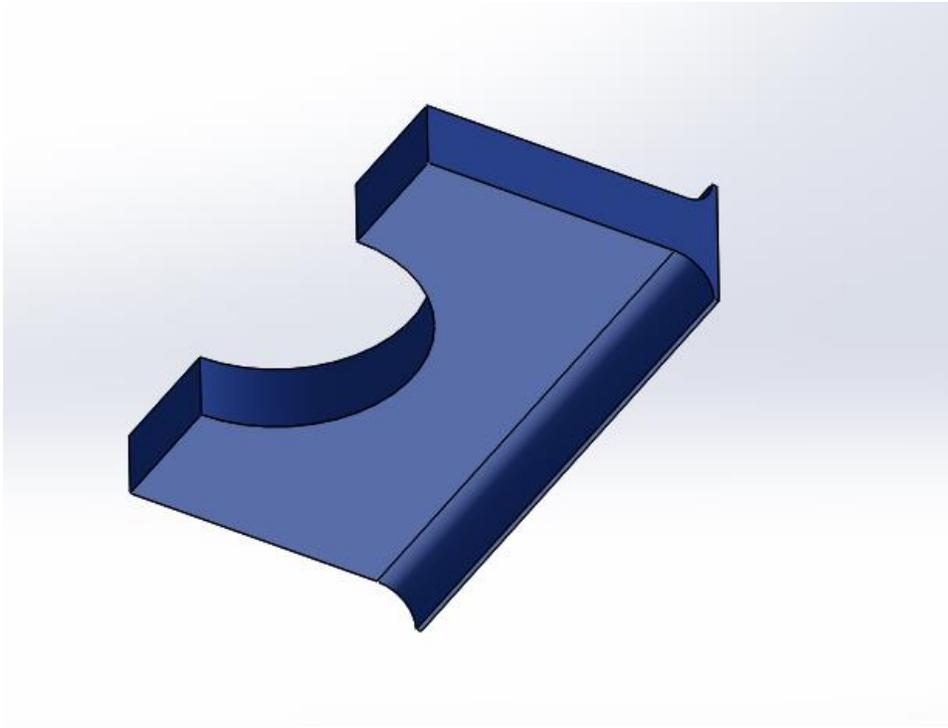6) Remove trays for easy clean-up

4.2 Drawing Sheets

Top plate part 1, Pyramid shape

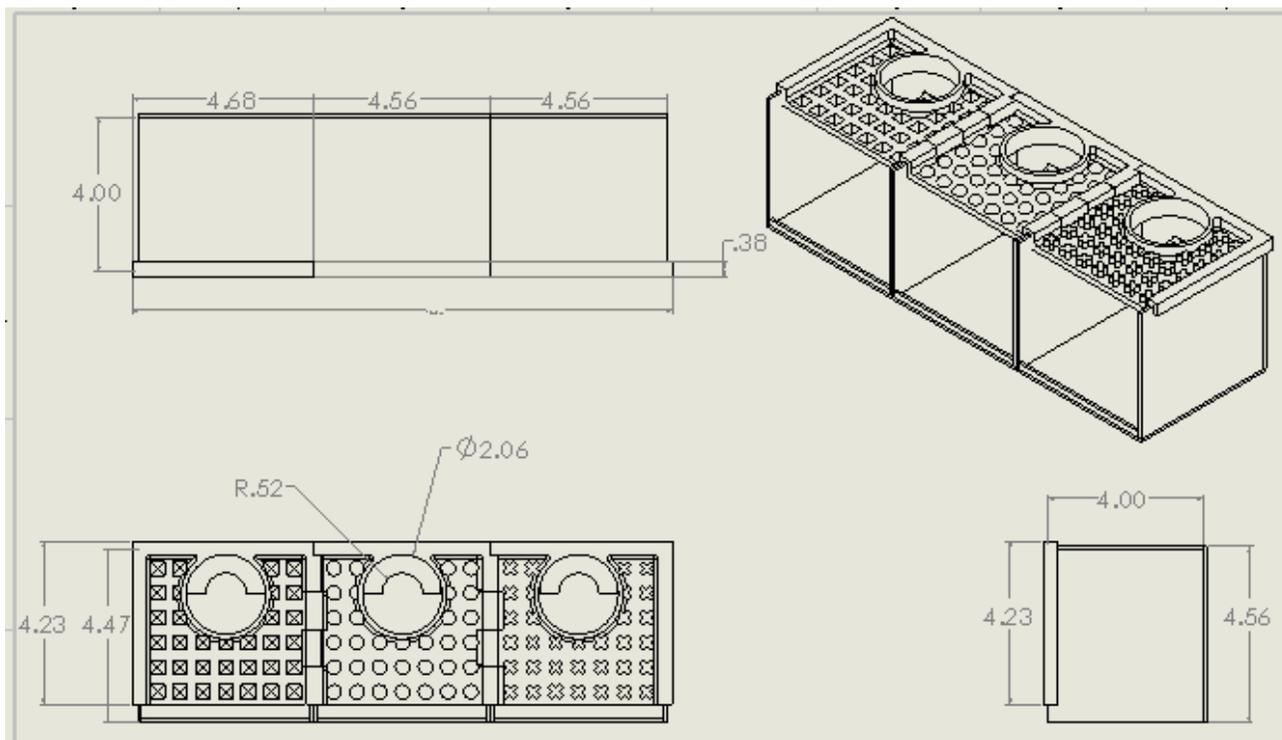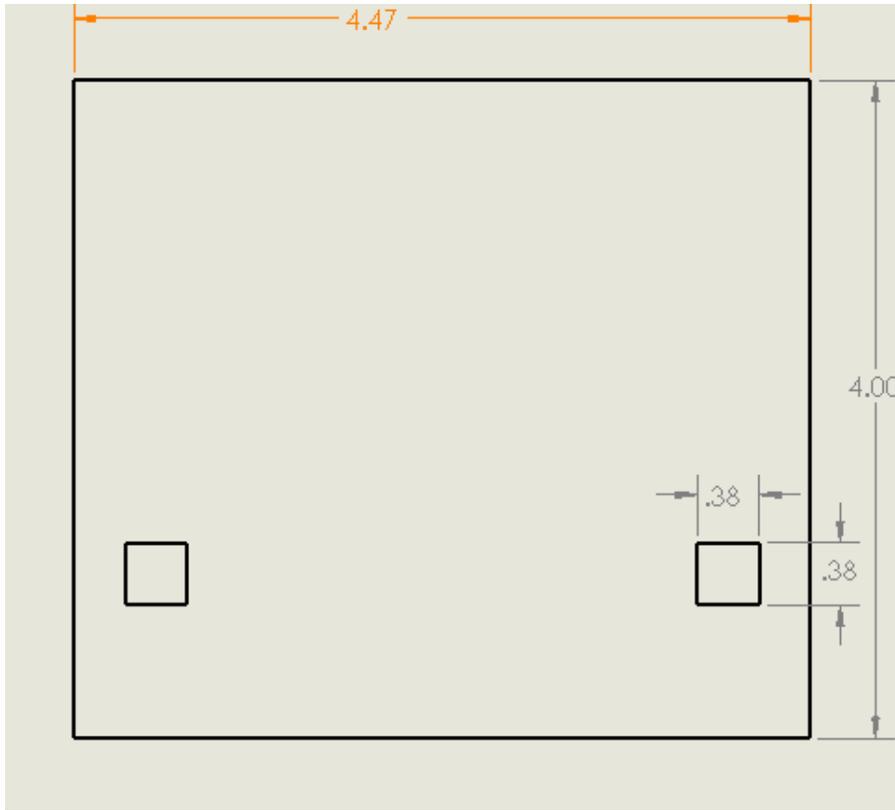Top plate part 2. Round shape

Top plate part 3, Cross shape

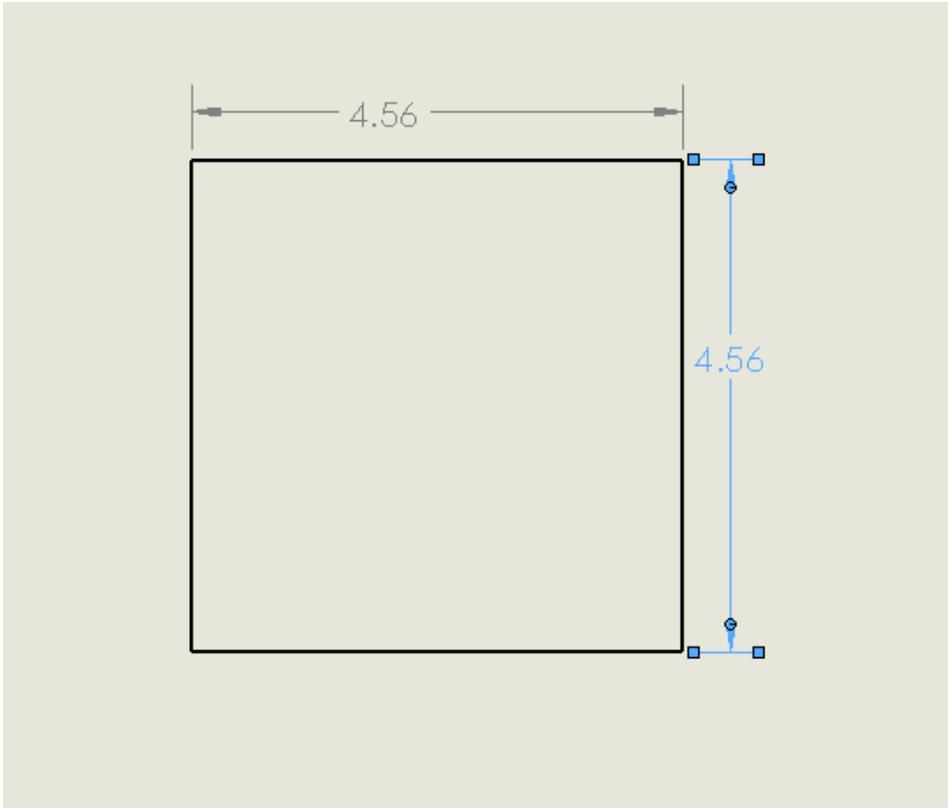Bottle Stand

5.0   APPENDIX

A.   APPENDIX

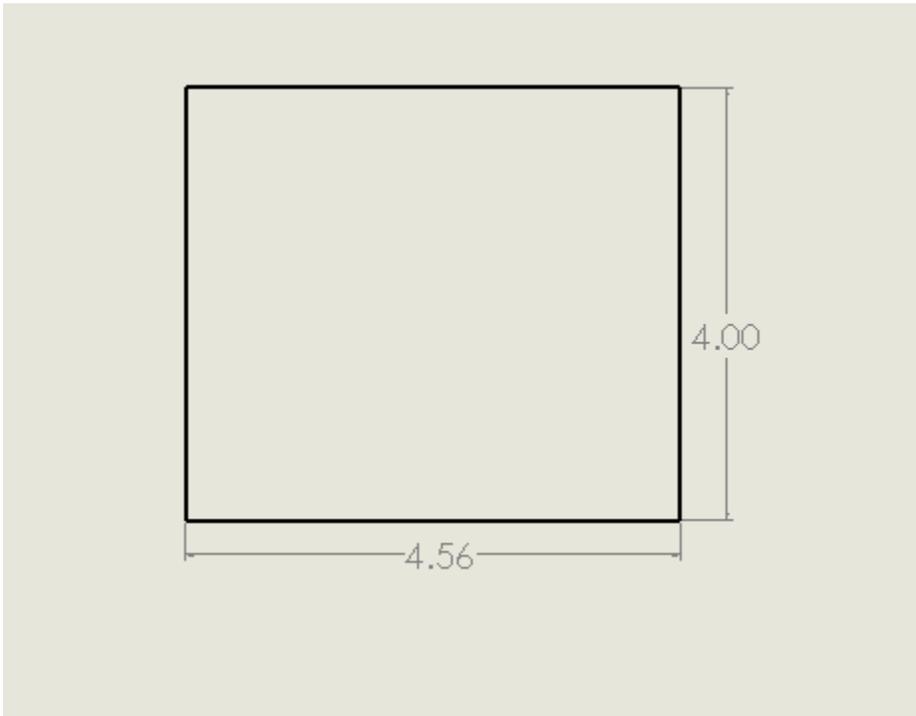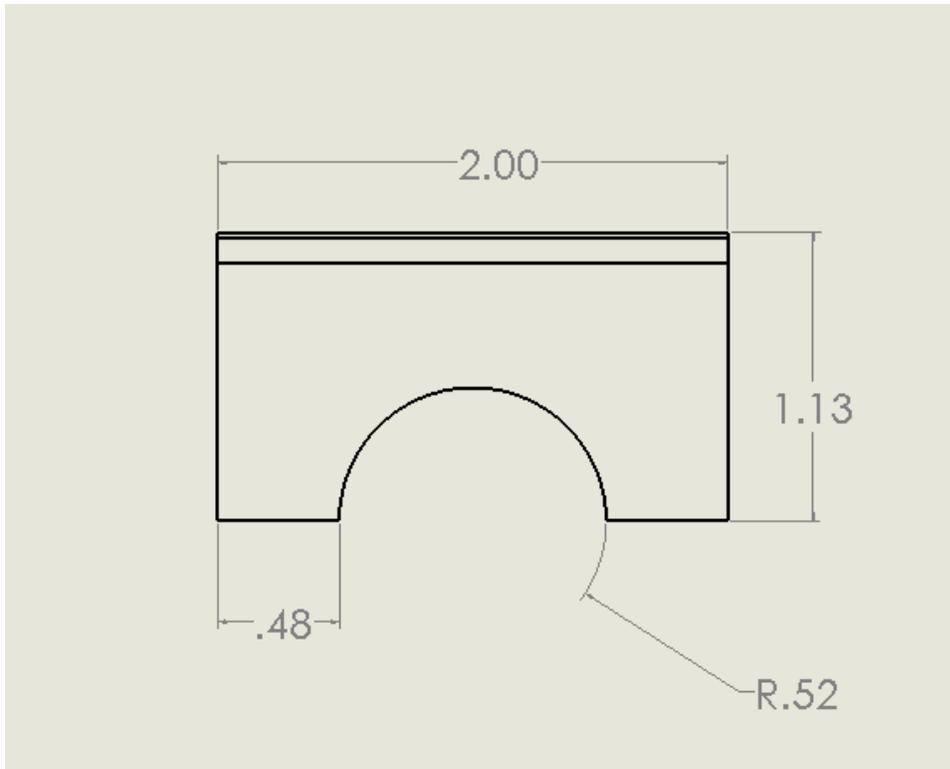*This section includes the drawings and specifications of the paint caddy in case reproduction is desired or needed.*

PC Acrylic side wall 2

PC Acrylic base

PC Acrylic Back Wall

Bottle stand

Item	Part Number	Description	Cost/Unit	Units	Shipping	Total Cost	Vendor
MP3 Player	SDMX26-008G-G46K	SanDisk 8GB Clip Jam MP3 Player, Black - microSD card slot and FM Radio -	29.99	1		29.99	amazon.com
Speaker	175	INTSUN Mini Portable Speaker	16.96	1		16.96	amazon.com
USB Drive	SDCZ60-032G-B35	SanDisk 32GB Cruzer Glide USB 2.0 Flash Drive	7.19	1		7.19	amazon.com
Multi-Purpose Squeeze Bottle Lid	3592801905	FIFO Innovations Multi-Purpose Squeeze Bottle Lids	9.99	1		9.99	webstaurantstore.com
Acrylic Sheet	769125010515-ACR24X18X	0.93" x 18" x 24" Clear Acrylic Sheet	14.14	1		14.14	Home Depot
Gorilla Glue	52427453754	3.75 oz Clear Gorilla Glue	7.97	1		7.97	Home Depot
Acrylic Paint	766218O48677	8oz Apple Tart Paint	2.99	1		2.99	Michael's
Acrylic Paint	766218O48615	8oz Bright Red Paint	2.99	1		2.99	Michael's
Acrylic Paint	766218O48745	8oz Dark Blue Paint	2.99	1		2.99	Michael's
Paint Tray	1050000000	Clear Square Paint Tray	1.99	3		5.97	Hobby Lobby
Plastic Squeeze Bottle Lids	1056000020	Plastic Squeeze Bottle Lids	3.49	1		3.49	Hobby Lobby
					Total	104.67	