PinPAC7 CG1, CG2,CG3 Installation Manual

Version 2.2 March 01, 2021

Welcome! This is the Pinnovators Installation Manual for the Chicago Gaming

"Medieval Madness Remake" (MMR),

"Attack From Mars Remake" (AFMR) and

"Monster Bash Remake (MBR) pinball systems.

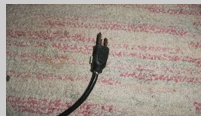## Contents

Warnings and Agreements

Welcome! The PinPAC Pinball Personal Audio Controller has been designed for simplicity of installation! As with any Pinball Machine modification and add on kit there is a required level of expertise for the installation. If you are not proficient in basic pinball parts installation we recommend having our kit installed by someone who is proficient with the basics of pinball repair. Pinnovators requires our kit be installed by an experienced Pinball service technician with basic electrical skills. As with any electrical piece of equipment a danger does exist and you must agree to not hold Pinnovators responsible for any injury, damages, etc. before continuing.

Sound Levels: Pinnovators recommends running your headphone sound level at a safe level to prevent long term hearing loss. For a good example of recommend sound levels, we recommend following suggestions given by major audio equipment manufacturers such as Apple and their iPod.
phys.org/news80304823.html
www.macworld.com/article/1060274/hearingprotection.html

ESD: We recommend always discharging the headphone cable by touching it to an exposed metal part of the pinball machine before plugging it into the machine.

Power Cord: ALWAYS UNPLUG THE POWER CORD for safety when working on your pinball machine!

Playfield Propping: Pinnovators highly advises following playfield propping instructions for your pinball machine. These instructions are typically found inside the Operators Manual for each machine. Failure to follow these instructions can cause fatal injuries or even death. Pinnovators also recommends having an assistant hold a propped playfield in the up position when servicing under the playfield.

1. Game History: Coin Doors and Controller boards

Change is inevitable!

Coin doors: There are two popular coin door types. Please see our coin door Gallery to learn more! MMR originally came out with a "C" type coin door but sometime in 2018 or 2019 switched over the latest "H" door. Check your machine carefully before ordering a kit to see what coin door you have. As always, feel free to email us a picture (Sales@pinnovators.com) and we will always be happy to assist.

AFMR and MBR have always come with "H" doors BUT make sure you check before ordering.

Pinball controllers are always evolving and sometimes that causes problems when we have an established product. Our original CG1,CG2 kits worked on Rev 2.0 and older boards (except for rev 0) but no longer worked with the Rev 3.1 due to the interface connector being designed out. We reengineered the product and came up with the CG3 Back Box Board. The CG3 will work with previous controllers except for rev 0.

We will switch over to the CG3 BBB when stock runs out for our original design.

This installation manual will cover both types of BBBs.

2. CG-MAC Installation Manual Link

If you purchased the Pinnovators CG-MAC kit for your machine, please see the MAC installation instructions at this link. The CG-MAC manual will be used in addition to this manual.

https://pinnovators.myshopify.com/pages/installation-manuals

Look for this file (or a newer version) under the "MAC Products" section

CG_MAC_Installation_Manual_Ver1p3.pd

3. What's included: PinPAC7 Legacy Kits

(Systems with Pinball Controller Rev 1.0-2.0)

PinPAC7 CG1 plate for Medieval Madness Remake (MMR) kits	
PinPAC7 CG2 for Attack From Mars Remake (AFMR) kits	
CG1, CG2 Back Box Board	
Cable Clamps. (1 spare for subwoofer cable option)	
Interface Cable	
Optional Accessories	
Subwoofer Cable Kit	

4. What's included: PinPAC7 2020 Kits

(Systems with Pinball Controller Rev 1.0-3.1)

PinPAC7 CG1 plate for Medieval Madness Remake (MMR) kits	
PinPAC7 CG2 plate for -Medieval Madness Remake (MMR) all models after 2020 -Attack From Mars Remake (AFMR) -Monster Bash Remake (MBR) all models	
CG3 Back Box Board	
Interface Cable	
Optional Accessories	
Subwoofer Cable Kit	

5. Requirements

The Pinnovators PinPAC7 system requires a Universal Validator Door slot on the machine's Coin door in the positions described below.

This is the coin door used on MMR (pre 2020). It requires the slot in the upper left section of the coin door.
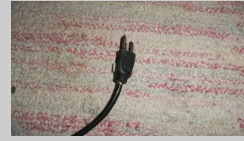

This is the coin door used on MMR Post 2018,AFMR, MBR. It requires the slot in the lower left location of the coin door.
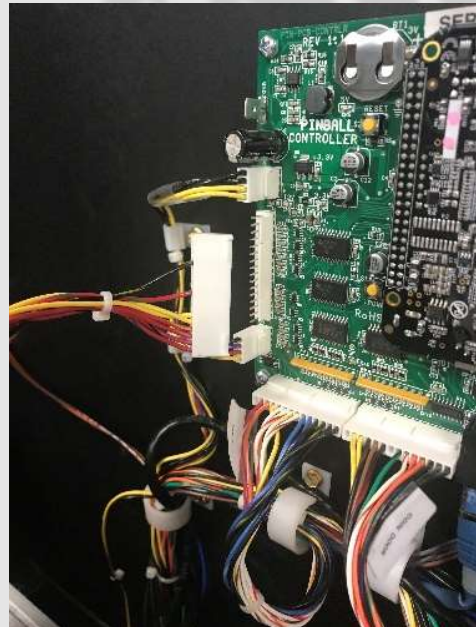

6. Preparation

Unplug the Pinball Machine!

Next remove the back glass on the system and unplug the back glass lighting cable to expose the System CPU circuit board. MMR is shown below as an example.
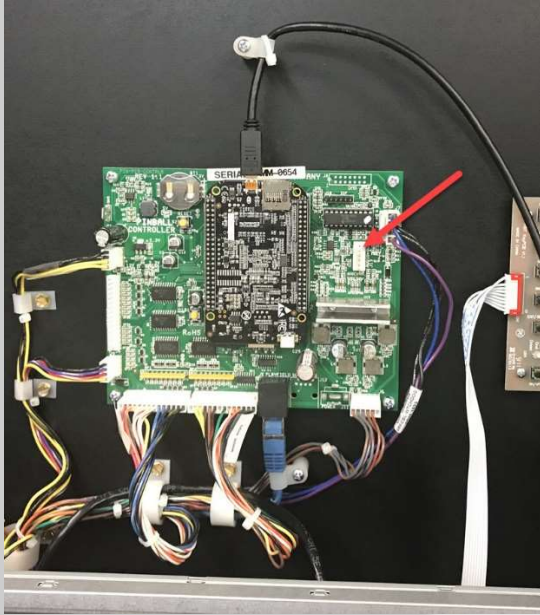
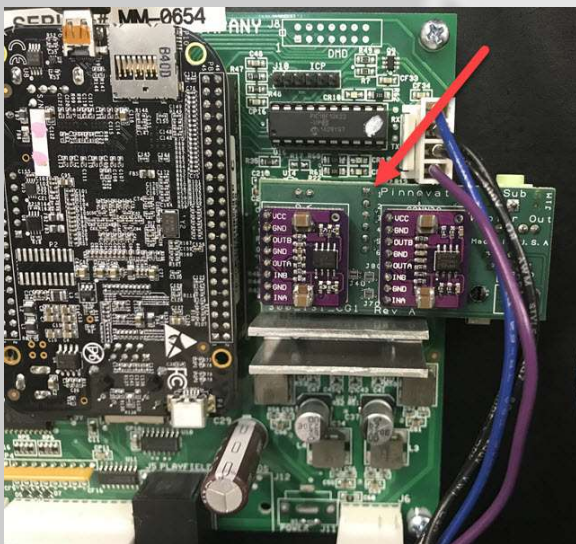AFMR will have a driver board to the right of the main CPU board.

7. Back Box Installation pre 2020:

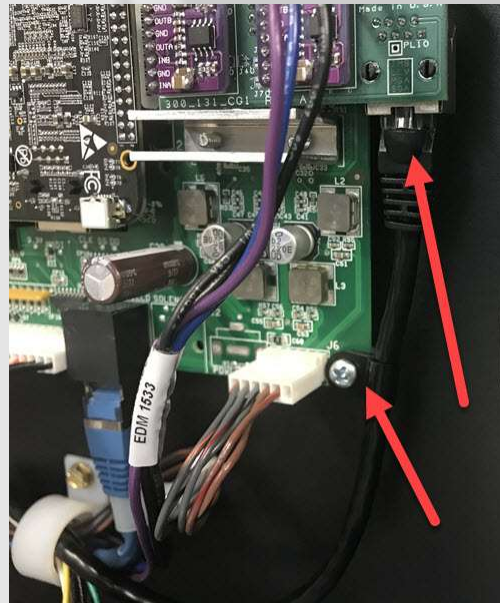Subwoofer / Audio out Board CG1,CG2 Back Box Board

Locate the six-pin audio connector shown by the red arrow in the picture.

Insert the Back Box Board/ sub adapter as shown in the next picture

Install the RJ45 Cable end into the RJ45 connector on the BBB. Place one of the included RJ45 cable clamps over the RJ45 cable.
Fully unscrew the lower right corner bolt that holds the CPU to the back box and then insert the bolt into the cable clamp and fasten the cable clamp in place as shown.
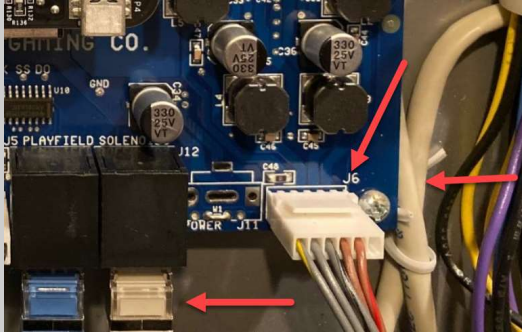
8. Back Box Installation 2020 and newer

The new CG3 Back Box Board will fit all of the controller board.

Locate the Speaker cable plugged into the J6 connector on the Pinball Controller Board. Unplug the speaker cable from J6.
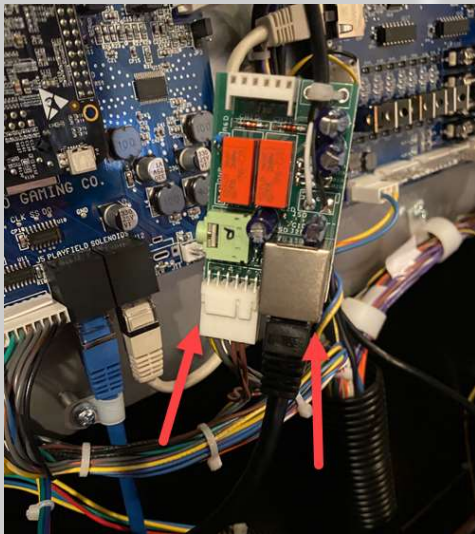
Route the white RJ45 cable away from the J6 location so the BBB can be installed without hitting the white cables.
Plug the Speaker connector into the mating connector on the BBB.
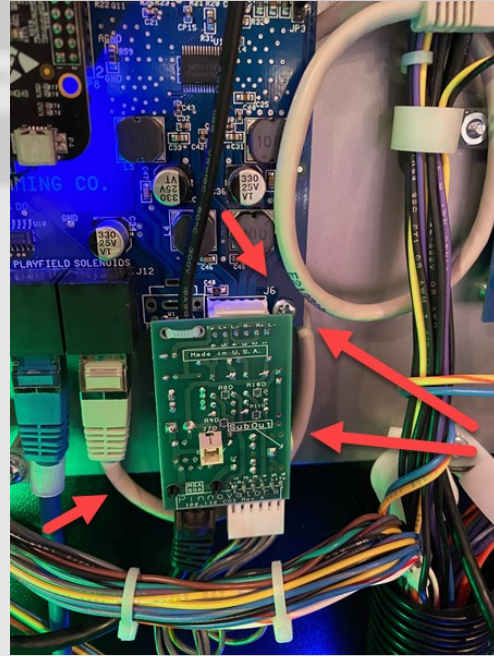

Install the included RJ45 Cable end into the RJ45 connector on the BBB.
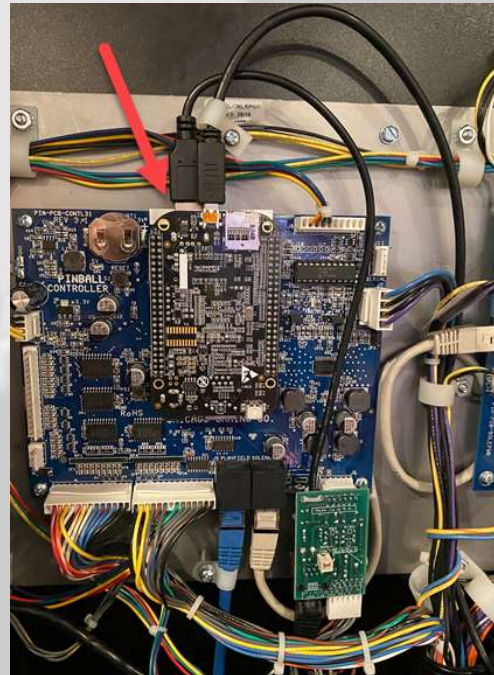Run the RJ45 cable through one of the game's cable clamps to relieve stress on the BBB.

Install the BBB into the J6 connector. IMPORTANT: Make sure the connector pins are aligned properly!

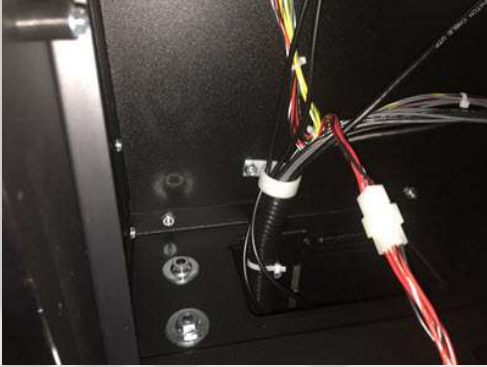Make sure the white RJ45 cable is tucked under the controller card as shown.

Plug the USB cable into the USB receptacle on the top of the Beagle Board.

9. RJ45 Wire Run Continued.

Route the RJ45 cable through the white cable clamp and then down into the main cabinet via the bottom of the Back Box. (example picture)

IMPORTANT: Leave some slack in the cable so the back box can be easily folded down without stretching the RJ45 cable!

10.   Subwoofer cable Installation:

If you purchased the optional subwoofer cable kit, please follow these installation instructions.

Unwrap the Pinnovators 12ft 3.5mm audio cable.

Route the subwoofer cable out the back of the back box OR through the bottom of a vent hole in the cabinet. You will have to loosen one of the screen mounting screws if you go out the back or you will have to push up gently on the bottom screen if you decide to route the cable through there instead.
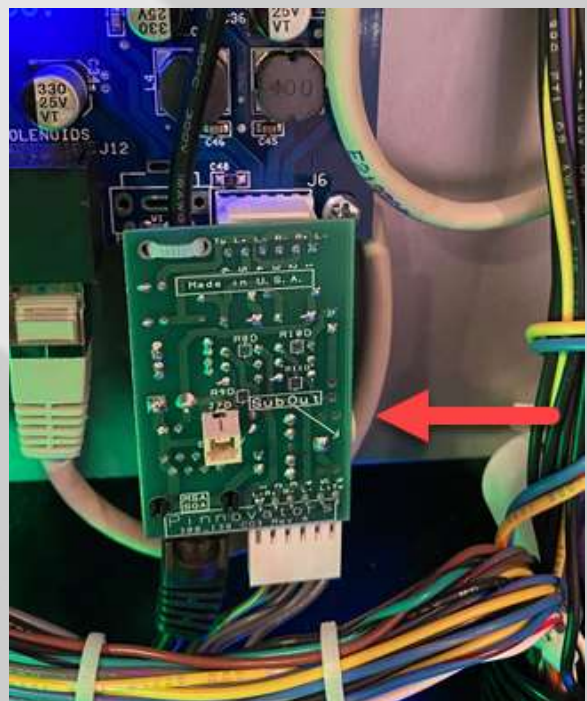

Plug cable from into the green 3.5 mm connector on the Back Box Board.
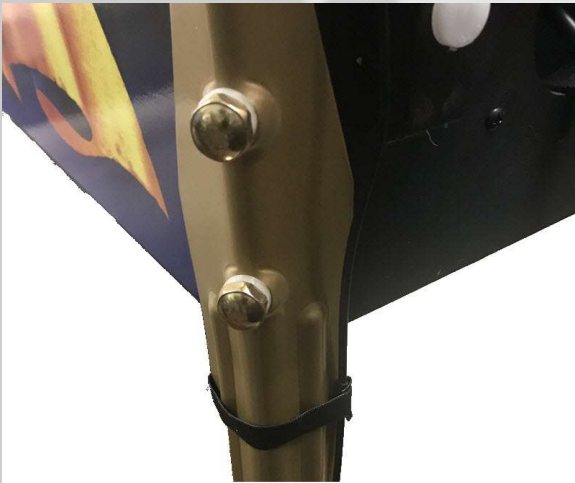Place the other included cable clamp over the subwoofer cable (CG1,CG2 BBB).
Remove the Upper Right CPU mounting bolt and feed it through the hole on the cable clamp.
Reinstall the bolt and mount the clamp as shown below.

CG3 BBB

Route the 3.5mm sub cable out the vent hole in the bottom of the cabinet. Use the included Velcro tie to secure the cable to the leg of the pinball machine.
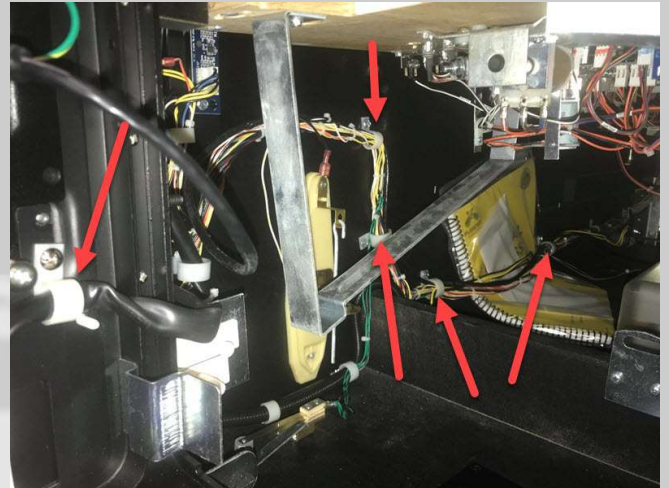

Reassemble the Back Box.

11. Running the Headphone Panel cable inside the machine

Using a helper, remove the playfield glass and lift up the playfield. Depending on the game, tuck the new cable into the wire harness clips as shown. Leave an extra foot of cable up at the Back Box area if you plan on folding the back box down.

IMPORTANT: Leave some slack in the RJ45 cable so the back box can be easily folded down without stretching the cable!

Lower the playfield and reinstall the glass and lockdown bar.

Continue to route the headphone audio cable along the wire harness. Secure the cable in the white cable clamps. The cable will end up at the coin door.
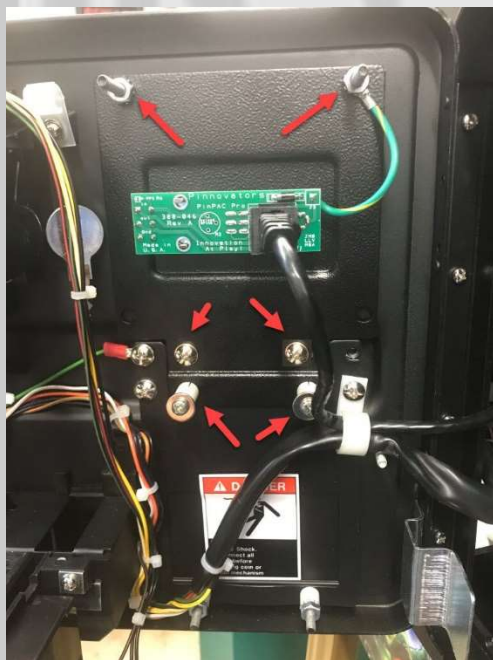
12.   Coin Door Installation PinPAC7:

Legacy CG1 MMR Kits:

Remove validator blank plate by unbolting the four nuts and two bolts as shown. Note: Save the spacers. The spacers are used to properly space the length of the screws.
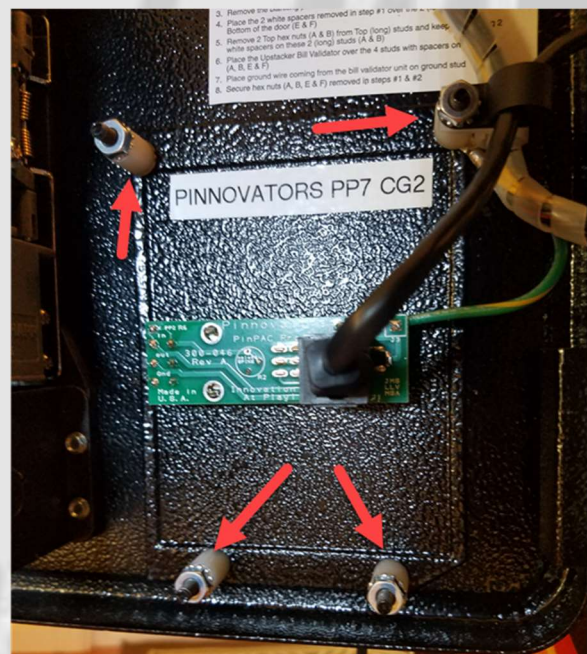
Insert the PinPAC7 plate as shown below. Position the ESD ground wire (the green wire) on the threaded stud. Fasten with the original hardware.

"H" door Kits:

Remove validator blank plate by unbolting the four nuts and as shown. Note: Save the spacers. The spacers are used to properly space the length of the screws.

Insert the PinPAC7 plate as shown below. Position the ESD ground wire (the green wire) on the threaded stud. Fasten with the original hardware.

ALL Doors:

Insert the end of the RJ45 cable into the RJ45 connector on the PinPAC7 front control panel as shown above. Make sure the cable "clicks" inside the connector for a reliable connection.
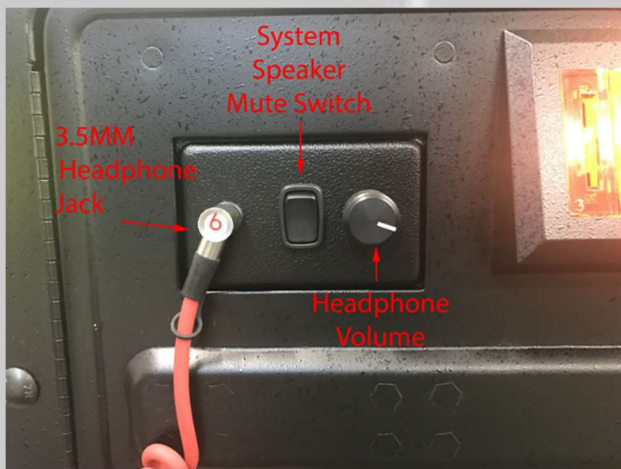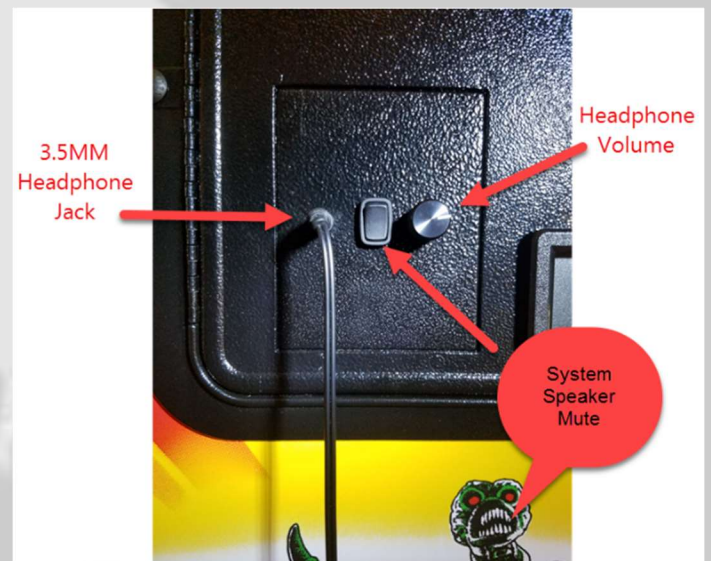
13.   Final Checkout

Power up the system and start a game!

Verify sound can be heard from the Back Box speakers and the lower Cabinet speaker.

Insert headphones into the jack and verify levels in headphones can be adjusted with the volume control knob.

Verify the system speakers mute when the mute switch is activated.

If you ordered the subwoofer cable, go ahead and plug that into your PINsmx or subwoofer. Verify audio is coming out of your subwoofer. Adjust subwoofer controls as necessary. Verify the subwoofer mutes when the mute switch is activated.

14.   Operation and audio levels

Use the up and down buttons inside the coin door to set the game audio level.

System volume does not mute when headphones are plugged in. You can focus on your game while wearing headphones and let your fans watch and listen to you play!

The overall headphone levels will still be based on the system volume level although the new PP7 will be louder that previous kits due to its power headphone amplifiers.

15.   Recommended Headphones.

Pinnovators tested our PinPAC kits and on many different headphones. Our favorite was the beats by Dr. Dre. We also tested a moderately priced set of headphones ~$30 and was still blown away by how good the bass response was and how clear the treble was!
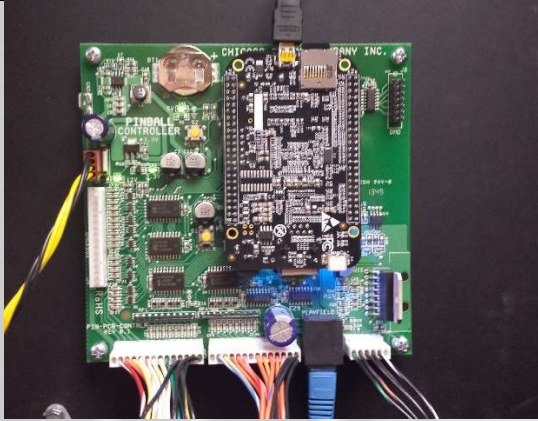
Thank your purchase of our product! We hope you get many years of service from it.
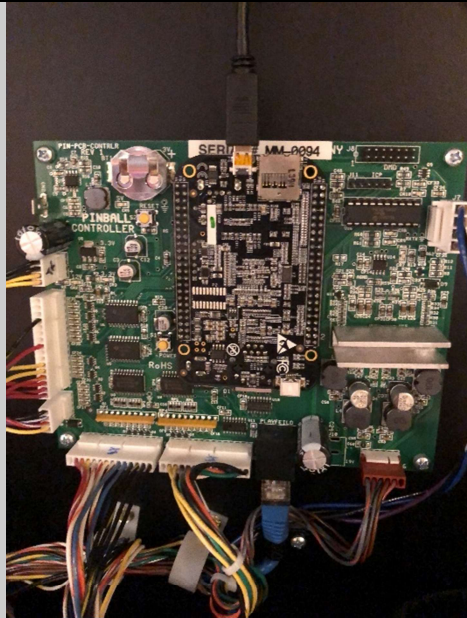
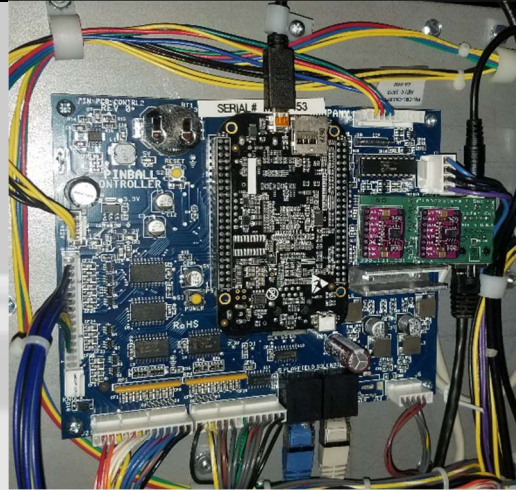The Pinnovators Team.

16. Appendix:

Pinball Controller Revisions	
 Rev 0.1	 Rev 2.0 (with headphone board)
 Rev 1.0	 Rev 3.1
 Rev 1.1	