Audio Station Electronics Setup and Usage Manual

Created by Marshall Scholz for the Marathon County Historical Society

V0.1

Setup

1. **Loading audio files**
   To load audio files onto the SD card, make sure the file is in an .mp3 format. Then rename the file to "track00x" replacing "x" with the button number you want the track to correspond to. Bringing the full file name to "track00x.mp3" The player should* play any size .mp3 file you load to it. (As long as the SD card is big enough)
   *This has been tested up to 1 hour of audio playback.

   Notes:
   - The bitrate for the .mp3 file should not matter as the controller automatically detects and sets this value, but if you are having trouble with odd sounding files and reloading the files to the SD card does not help, you may need to change the bitrate of the file. Known working bitrates are 320kb/s and 128kb/s.

2. **Connections**
   Refer to Figure1. (Bottom of document)

   Notes:
   - Tighten screw terminals snugly, but not too tightly. If you can pull on the wires (gently) and they do not release, the terminal block is tight enough.
   - All ground wires are bussed and connect to the single ground terminal block.
   - Power input is a barrel jack with a positive center pin. Voltage is 5 volts for board that does not look like figure 1 and is 6-12 volts for the others.
   - When inserting audio plug the audio daughter board may become loose. Make sure that this board is seated properly in its socket and is held securely when inserting jack. The jack should also "click" in when inserted fully.
   - Plug in the power after plugging in the SD card. While powering the board without a SD card will not harm it, you will have to reset the board after inserting the SD card anyway.

Usage and adjustment

1. **Usage**

   In normal operation, all LED lights in the switches should fade in and out softly until you press a button. This is the idle state. Once a button is pressed, all buttons except the button that was pressed should turn off, while the pressed button should stay solidly on while the selected file starts playing. If the button is pressed again or the file finishes playing, the system will go back to the idle state. If a different button is pressed, the system will immediately start playing the file associated with that button and switch active LED's accordingly. If more than one button is pressed at a time, the system will default to the highest numbered button.

2. **Adjustment**

   The volume buttons are the only physical buttons meant for adjustment in this system. You can single press either of the buttons, or hold them to increase or decrease the output volume and will not affect the individual playback volumes of the files. Just the master playback volume. Clicking the buttons will adjust the volume by one "notch", while holding either of the buttons will continuously increase or decrease the volume until the volume limits are reached or the button is released.

   Notes:
   - If the system produces no volume and all connections have been checked, holding the up volume button may help, as the volume range extends low enough to effectively mute the file.

Troubleshooting

Symptom:	Problem:	Solution:
No lights are on	No power to circuit -------->	-Check and plug in power
Power lights on but switch lights are off	SD card not present -------> System not initialized properly ----------------------> Lights not wired correctly or burnt out------------------>	-Insert or reseat SD card, then press reset -Wait up to 30 seconds for system to initialize, if still not working, cycle power. -Check wiring and bulbs (5 volt LED)
No sound when file is playing and light is on	No file playing---------------> Volume is too low ----------> Sound output faulty or not plugged in correctly--------> Audio file is too soft or is corrupt----------------------->	-Play file -Turn volume up (hold volume up switch until sound is heard) -Reseat audio jack, if still not working, test output with known working headphones to confirm audio output. -Increase volume on file and/or reload file.

When button is pressed light comes on briefly then starts idling again. No sound is played	No file on SD card corresponding with button pressed---------------------->	-Rename a file "track00X" where "X" is the corresponding button number. -Disconnect unused button.

Problem still not solved? Contact Marshall Scholz at 715-571-5675 or Marshscholz@gmail.com

Figure 1.