Accessible Media Player (AMP2)
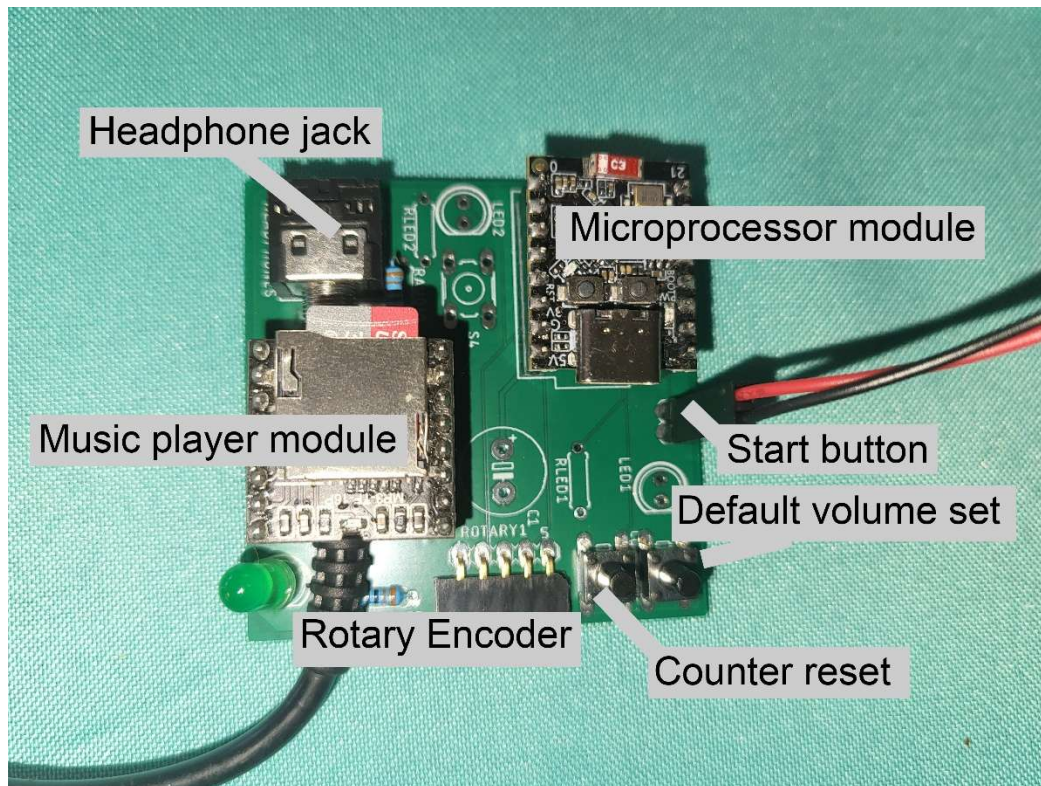
Administrators Guide

Rev 2, July 2025

Using the AMP2 Accessible Media Player

The AMP2 is an easy-to-use audio device designed to play a recorded description when the start button is pressed.

While the track is playing, the volume may be adjusted up or down by turning the volume control located on the bottom of the AMP2 unit. The volume selected remains only until the track is complete, then the volume will revert back to the default.

Product Description

The AMP2 is a small, self-contained media player designed to provide audio descriptions to accompany a public art display. The AMP2 is intuitive and easy to use for all patrons, including those with low vision. Operation is controlled with a single large, high visibility button on the front panel, and a volume control on the bottom of the unit. Headphones and power cables are captive when the AMP2 is mounted, preventing casual theft.

Pressing the start button will start the audio track. There is also the volume control, which is only needed if a user wishes to listen at higher or lower volume than usual. Each time the audio track is started the volume will be reset to the default volume (see default volume adjustment later in this document). The automatic volume reset avoids problems created by users leaving the volume set too high or too low for the next user. A green LED behind the front panel shows when a track is playing. Pressing the start button while the description is playing will always reset the volume to default and start the description over from the beginning.

There is an electronic counter built in to track how many times the audio description has been played. This count is stored in non-volatile memory and will be retained even when power is removed. The counter can only be read by accessing the web interface in a browser.

The AMP2 is based on a small low power microcontroller (ESP32-C3) using an MP3 player component with an embedded MicroSD card. Power is supplied using a USB-C connector on the board, which can be connected to any readily available USB charger. It is not recommended to use battery power banks to power the AMP2, as most power banks will power down when the system is idle, preventing proper operation. The system draws very little power, and most power banks behave as if nothing is attached, thus powering off completely.
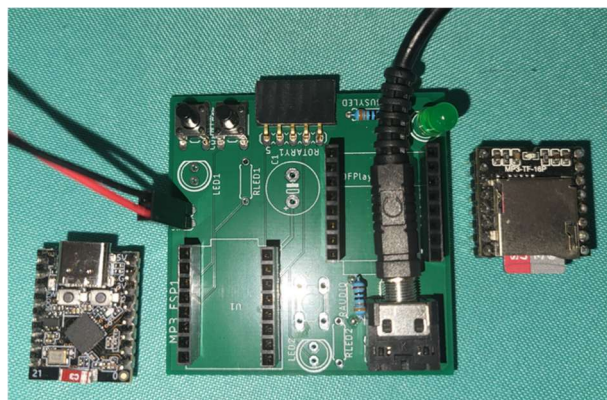
Installation and Initial Setup

Begin by opening the AMP2 housing. Remove the 3 screws (2 on the sides and one on top) and carefully remove the front panel. All electronics and connections remain on the front panel as it is removed.

The rear portion of the case can now be mounted on the wall, using screws or removeable adhesive strips. It is recommended to have all the AMP2 units mounted at a consistent height for ease of access by visually impaired users.

The AMP2 is designed to play a single MP3 audio track. This MP3 file is stored on a microSD card (32 GB or smaller). It is recommended to have only one MP3 file on the memory card, but if more than one file is present the active file should be named 001xxxx.MP3 (xxxx can be any text as long as the file name begins with *001* and the file extension is *.MP3*. Insert the microSD card into the socket.
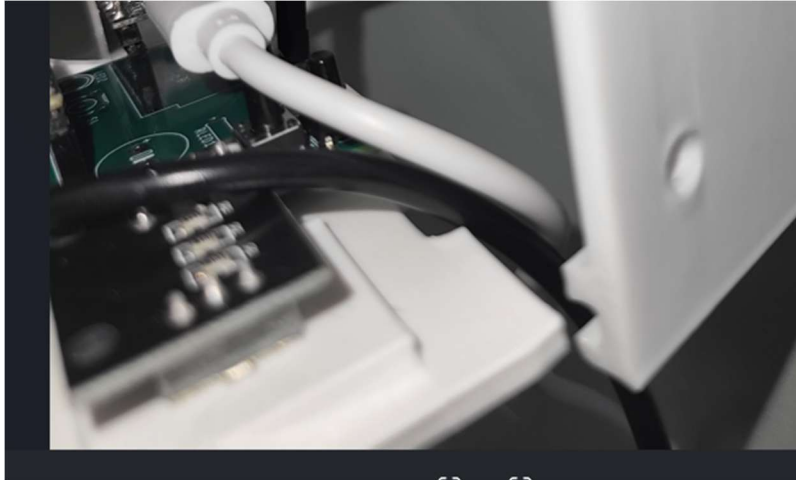
Make sure the headphones are attached to the connector on the main board. The headphone connector is located behind the music player module (the module with the MicroSD card on it). The headphone cable should be routed under the player module and inserted fully into the headphone connector. Although the player module does not need to be removed to attach the headphone cable, removing it may make installation easier. Note the orientation of the player module, with the MicroSD card towards the headphone jack.

 Connect power to the AMP2. Connect a power cable to the USB-C connector directly on the ESP32 microprocessor module.

To set the default volume, press the start button before inserting the front panel into the wall mounted case. Use the volume adjustment knob to set an appropriate level. Then, while the track is still playing, press the "Volume Set" button on the main board. The "Click Count Reset" button can be pressed if desired to reset the click counter to zero. Note: Both the default volume and counter reset can be set using the web interface (if used) as well.

Insert the front panel into the wall mounted case. The headphone and USB power cable should be guided into the slot on the bottom as the front panel is inserted. Make sure the bottom panel slides into the channel molded into the case.

Connecting to the network (optional)

If network access is desired, the AMP2 must be configured to connect to a WI-FI network. If the AMP2 is not currently configured to access a network, it will create a WI-FI hotspot. The SSID of the hotspot will be "AMP2configuration", and the password to connect to it is "robynsart". Connect a computer to the hotspot network, and load the page "http://192.168.4.1/" in a browser. A screen should display which allows configuration of the SSID and credentials for your existing Wi-Fi network. It is recommended (but not required) for security that you to create a dedicated Wi-Fi network for the AMP2 devices. The AMP2 devices do not require internet access to function. Check the DHCP service (typically the wireless router) to determine what IP Address has been assigned, which will be used to connect to the web interface. Document each AMP2 IP address for access later. A suitable SSID and password should be used on the wireless network to provide security appropriate for the environment. The AMP2 hotspot will not be available once another network connection is complete (unless that network connection fails to connect in future).

Using the web interface

The web interface is accessed using a browser. The URL for the web interface is "http://<IP Address>", using whatever IP address was assigned by the network. The web interface provides information and allows setting certain parameters. Note that the web interface is not used for normal operation, and is only required for troubleshooting, setting volume, and resetting click counters. The web interface requires credentials to access: username: "rauser" and password: "pweSp1!" are hard coded. These cannot be changed, and are common to all AMP2 devices, so access to the network should be controlled to maintain security. Note: If security requirements preclude the use of a web interface, a firmware version is available without any network capability (this firmware lacks some features, such as the click counter, but can be used in much the same way including the physical button for default volume setup).

Once logged in, the web interface will look like this:

Click Count: The number of times the 'Start' button has been pressed and the recording played since the counter was reset. The counter is persistent across reboots and firmware upgrades.

Counter Reset: This will reset the counter to zero. Note: clicking here will immediately reset the counter without any confirmation. There is no undo feature, so if clicked inadvertently the current click count will be lost.

Volume set to current: If a recording is actively being played, either remotely or by pressing the start button, the volume control on the bottom of the unit will be active. Clicking the 'Volume set to current' button will set the default volume to whatever the current volume is set to. This allows the default volume to be adjusted to whatever the desired level is. Default volume is persistent across reboots and firmware upgrades. Note: This web interface button performs the same task as the volume set button on the main board, without requiring the case to be opened. 'Current Volume' and 'Default Volume' are displayed as well. Note there may be a delay of a few seconds before the display is updated.

Identify: This switch will turn on a small LED on the microprocessor board. The LED may not be visible when the case is assembled, this is intended to allow confirmation of which system is being accessed during installation if needed.

Remote Play: This will start the recording, (the same way the 'Start' button does). The click counter is also incremented. In addition to testing and troubleshooting, this can be useful in cases where a user is at the AMP2, but cannot press the 'Start' button for any reason.

Serial Number: and **Version:** Information displayed to identify the serial number and firmware version of the AMP2.

OTA Update: This allows the firmware on the AMP2 to be updated. Note: If this is used to update the firmware to a high security version (i.e. no Wi-Fi capability) there would no longer be a web interface, so no way to flash the AMP2 back to a standard firmware version. Click 'Choose File', select a valid firmware file, and click 'Update.'

Debug Log: This window displays a running display of events and indicators happening at the AMP2 for troubleshooting purposes.