

S.U.E. (Sound Unit Expansion)

Document v1.0 drafted by:

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For Crashworks S.U.E board

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Thank you to the Crashworks team for letting me be a part of this.

Overview

The S.U.E board is a Sound Expansion Unit that easily connects to the A.L.I.S.H.A board to add sound effects to your Iron Man helmet, suit, or Cosplay prop. It's "plug and play" feature allows the user to easily connect the two boards together with existing ports located on A.L.I.S.H.A. and S.U.E. Little to no wiring is required. The A.L.I.S.H.A. board is run using an Arduino Nano. If you don't know what Arduino is, here are some quick links to help you get started.

- 1) <https://www.arduino.cc/en/guide/introduction> - READ GUIDE
- 2) <https://youtu.be/kaqnEudpTHA> - YOUTUBE VIDEO

Link to download Arduino IDE software: <https://www.arduino.cc/en/software>

*****NOTE; additional libraries will need to be downloaded and added to the Arduino IDE.*****

Specifications

The S.U.E board has a DFPlayerMini module (mp3 player), SD card slot, on-board amp, and auxiliary audio port. For audio output you have the choice of using the on-board amplifier connected to a standard 8-ohm (1 ~ 3 watt max) speaker, which will operate in mono sound. Alternatively you can use a speaker (i.e. bluetooth portable speaker, or powered speaker) connected via the aux port.

The three sounds currently used for the Iron Man helmet are available for download from the Crash Works 3D github https://github.com/crashworks3d/Iron_Man_Servo. These sound files need to be added to your SD card.

SD Card Formatting & Adding Sound Files

Please visit our Github to download the PDF guide for SD Card Formatting & Adding Sound files.

[https://github.com/crashworks3d/Iron_Man_Servo/blob/master/Crash Works 3D - S.U.E. SD Card Formatting Instructions v1.0.pdf](https://github.com/crashworks3d/Iron_Man_Servo/blob/master/Crash%20Works%203D%20-%20S.U.E.%20SD%20Card%20Formatting%20Instructions%20v1.0.pdf)

Libraries required for the Arduino IDE

- ButtonEvents library
- Bounce2
- DFRobotDFPlayerMini
- VerSpeedServo-master

Here is the Crash Works 3D github link with instructions on how to download and install the required libraries:

Crashworks github: https://github.com/crashworks3d/Iron_Man_Servo

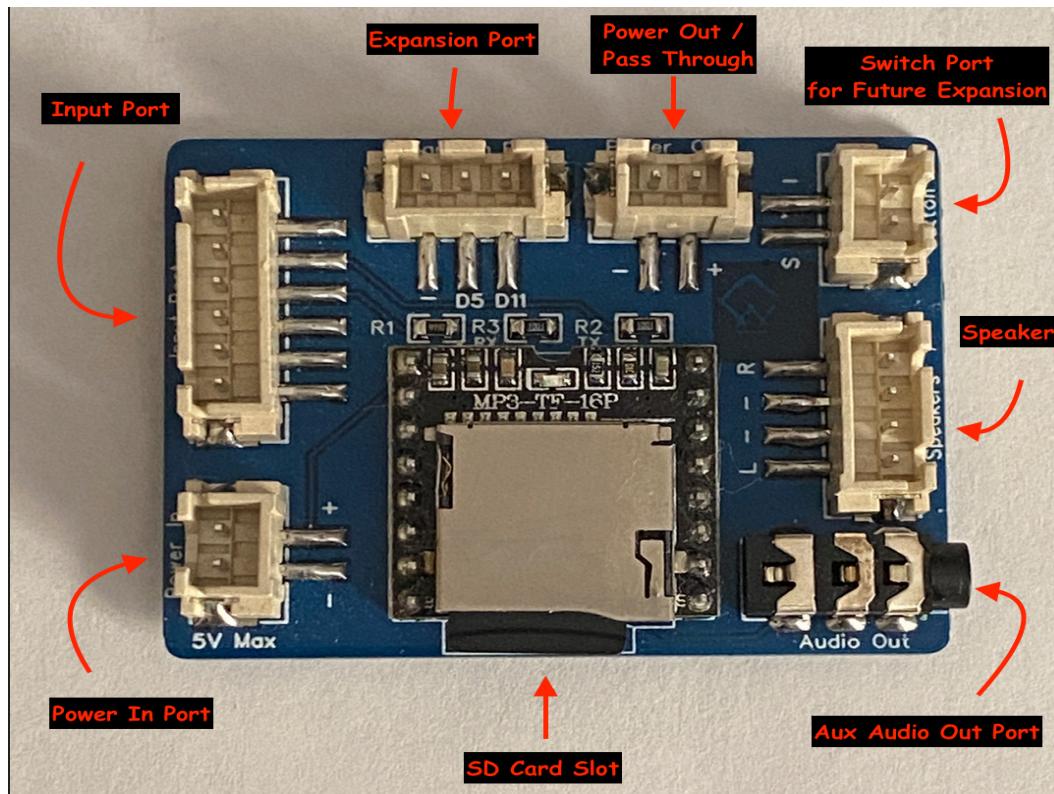
ButtonEvents: <https://github.com/faстедdy516/ButtonEvents>

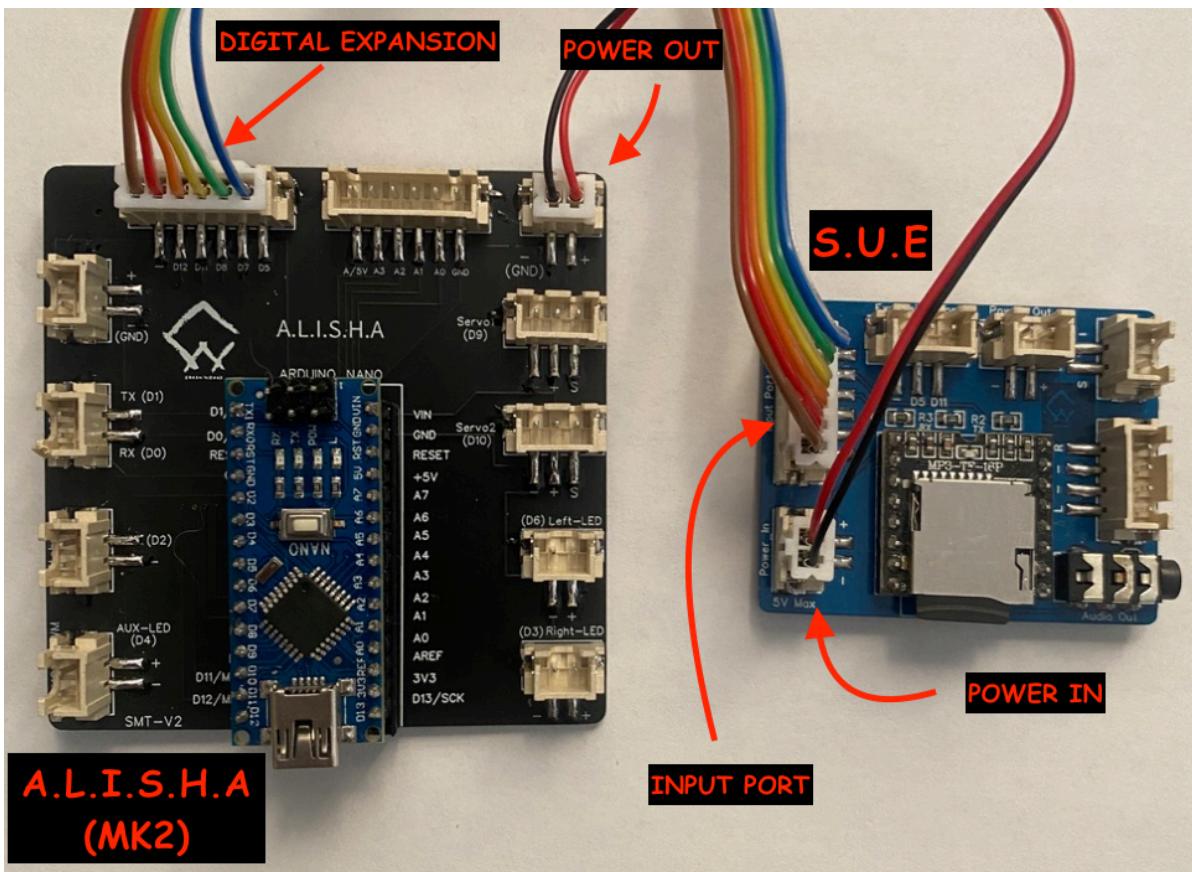
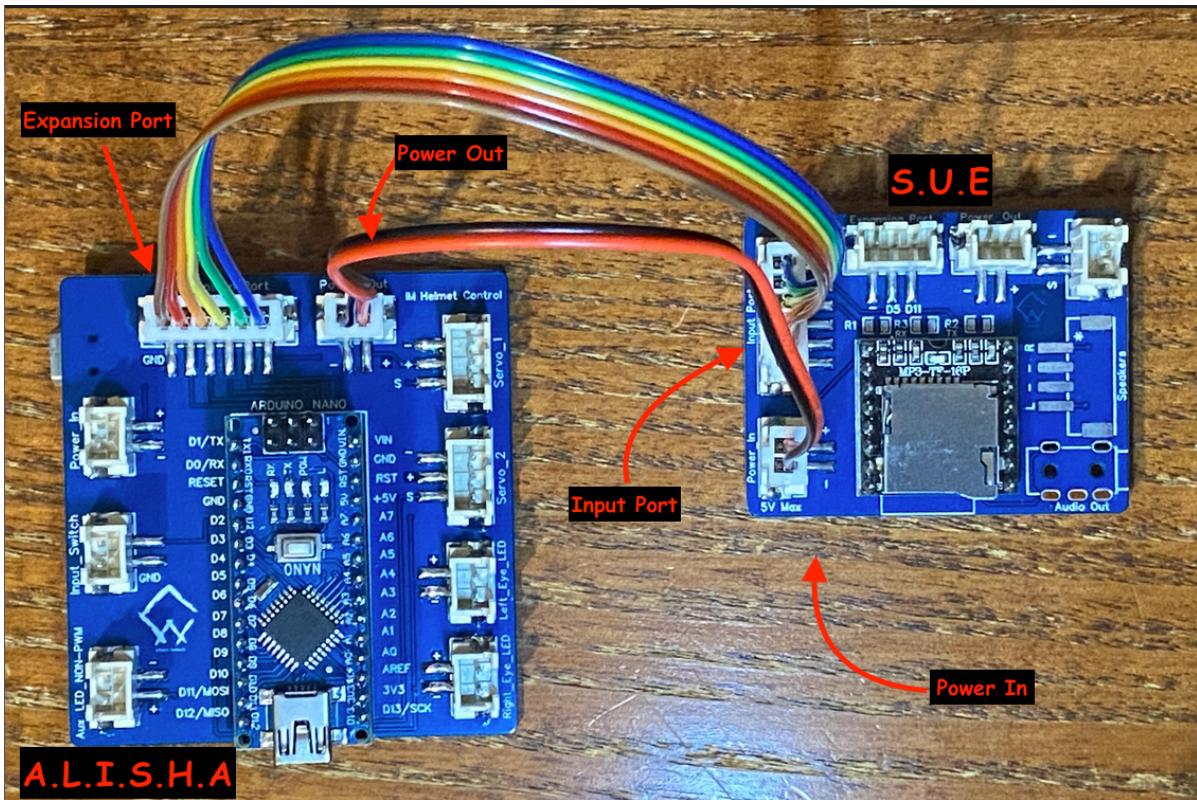
Bounce2: <https://github.com/thomasfredericks/Bounce2>

DFRobotDFPlayerMini: <https://github.com/DFRobot/DFRobotDFPlayerMini>

VerSpeedServo-master: <https://github.com/netlabtoolkit/VarSpeedServo>

There are two ports that need to be plugged in to S.U.E. which connect to the A.L.I.S.H.A board. The “Power_Out” port on A.L.I.S.H.A. needs to connect to the “Power_In” port on S.U.E. and the “Expansion / Digital Expansion” port on A.L.I.S.H.A connects to the “Input” port on S.U.E..





For further help about AL.I.S.H.A and S.U.E please check out the videos made by Jesse Giovanni.

A.L.I.S.H.A and S.U.E boards from Crashworks test demonstration:

<https://youtu.be/Rr13A8nV4pA>

A.L.I.S.H.A. and S.U.E. part 2: coding and sound files:

<https://youtu.be/tqJOX5Ciovs>

If you are looking for 3D printable file kits for Iron Man helmet motorization, you can visit the Crash Works 3D Thingiverse page, which contains kits and documentation for Iron Man MK7, Iron Man MK46, and Iron Man MK85 helmets.

<https://www.thingiverse.com/crashworks3d/designs>

Thank you for your purchase, we hope you enjoy using our system and wish you the best with your project.