

A.L.I.S.H.A. Mini

(AM3 Version)

ATTiny LED & Integrated Servo Helmet Actuator Mini version AM3 is a simple to install ATTiny85 shield module that allows DIY people to easily motorize and light up their favorite 3D printed Iron Man helmet or any other helmets (i.e. Batman, Gray Fox, etc.). Drives up to 2 MG90S servos (recommended), Control for 2 LEDs for eyes (PWM), and 1 button/switch port for controlling board operation.

*****The Board needs to be powered with a USB powerbank, example: 5v (2.1A) -or- 5v (2.4A) -or- 5v (3A). DO NOT USE “AA” OR “AAA” BATTERY PACK, THEY CAN DAMAGE THE BOARD*****

Each LED port has a 100Ω (ohm) current limiting resistor.

Full documentation, and instructions are on the ***Crash Works 3D GitHub Page***.

Board size:

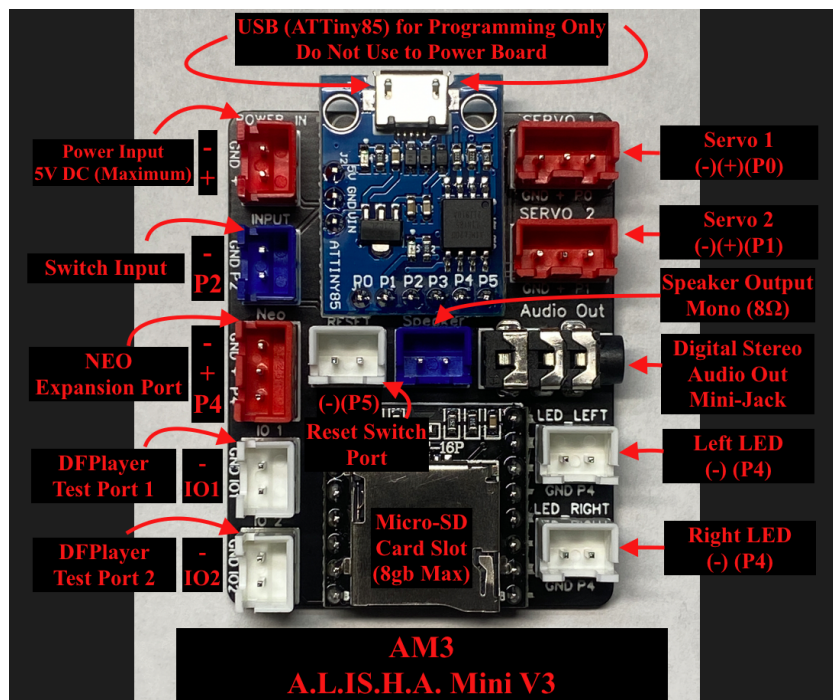
AM3 - 40mm x 51mm

Includes:

- ATTiny85 Microcontroller
- AM3 board with JST-XH female pin headers for easy jumper wire connection
- 2 - JST 3-pin headers for easy jumper wire connection to Servos
- 1 - JST 2-pin header for easy jumper wire connection to Power In Port
- 3 - JST 2-pin headers for easy jumper wire connection to LEDs and Input Switch
- 1 - JST 2-pin header for easy connection to a speaker

Included are pre-wired connectors to make connection to your components easier.

- Two 3-pin wired connectors for your servos; they are color coded (**Black = Ground / Red = + / Yellow = S**). ***MG90s servos S = Orange***
- One 2-pin wired connector for your power input. (**Red (+) / Black [Ground]**)
- One 2-pin wired connector for your switch input (Either **Green wire** set or **Blue wire** set) **** Switch input is not polarity sensitive****
- Two 2-pin wired connectors for your LEDs (**Red(+) / Black [Ground]**)
- One 2-pin wired connector for your speaker (Either a **Black & Green** wire set or **Black & Blue** wire set)



The board is powered using the “Power-in” connection on the top-left side of the board; this is a standard JST-XH (2.54) connector. You can use the included 2-pin wired connector to power the AM3. ***** Do not power the board by plugging a USB cable directly into the ATTiny85, also the input voltage is 5V DC, and cannot be exceeded*****

The LED outputs are separated into “Left” and “Right”. You can connect to these using the included 2-pin wired connector, the **Red** wire connects to positive of your LED and the Black wire connects to negative of your LED.

*****Note the “Left” & “Right” LEDs are PWM controlled, and in coding can have their intensity adjusted as well as the option to have them blink. *****

The Input is triggered by a momentary “Normally Open” type switch, which you provide. You can use the provided 2-pin wired (either **Green wire** set or **Blue wire** set) connector to add your switch for controlling board operation.

***** You cannot use a “Normally Closed” Type Switch. If using a Limit switch, you must wire to the “C” (common) and “NO” (Normally Open) terminals on the switch. *****

The Audio output is via the speaker connector; use the provided 2-pin wired connector (either a **Black & Green** wire set or **Black & Blue** wire set) to connect to a speaker, which you provide. The recommended speaker is an 8Ω (ohm) / 3 Watt maximum. Or you can use a powered speaker connected to the Audio Out Port, which uses a 3.5mm Stereo Jack.

The Micro-SD Card Audio slot can support up to a 8gb card (Maximum), which you provide, and needs to be formatted as FAT32. **(See Attached Document on SD Card Formatting)**

The ATTiny85 is pre-flashed with the Crashworks 3D code. Once you have correctly wired to your Servos and LEDs, upon initial power up the LEDs will blink and the servos will move to their home position. Upon the 1st input (button press from switch) it will let the system know you are ready for operation. Each button press after this will trigger a function to either open the helmet (turn the LEDs off) –or- close the helmet (turn the LEDs on). If you “**Double Tap**” the Button the Button it will adjust the brightness of the LED eyes, there are 4 settings: Off, Low Brightness, Middle Brightness, and High Brightness.

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

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

Additional resources, and products can be found on our Linktree.

<https://linktr.ee/crashworks3d>

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