Ackbar v0.2 Guide

Power Requirements

The trap requires an external 12 volt (nominal) DC power supply capable of delivering up to 3 amps via a center-positive 5.5mm x 2.1mm barrel plug. When idle, the trap draws approximately 40 milliamps.

The trap has been tested with the following power source:
https://www.amazon.com/gp/product/B06X3X939W

The microcontroller and e-Ink display can also be powered via the USB C connector without applying power to the 12V connector in order to update firmware or edit the configuration file, but the motor will not be powered, and the trap will report an error on the e-Ink display and status LED.

It is safe to connect both 12V power and USB C at the same time.

Power Up

When 12V power is applied to the trap, it will go through a self-test and calibration sequence. The motor will spin the barrel, calibrate the laser trigger, and then arm the trap. If this process fails, an error will be shown on the e-Ink display, and the status LED will turn RED. If it succeeds, a QR code will be shown on the e-Ink display and the status LED will turn GREEN.

Configuration File and Firmware Updates

When connected to a computer, the trap will enumerate as a USB CDC (serial port) device and two USB MSC (Mass Storage Controller) devices. The CDC device can be used to view the debug output of the firmware, or to update the firmware using the Arduino IDE. Firmware source code for the Arduino environment can be found here: https://github.com/phuzzykins/Ackbar/AckbarFirmware

One of the USB MSC devices will expose a FAT formatted filesystem containing a file called firmware.bin. A new firmware file can be copied over the existing one to update the firmware.

The second USB MSC device will expose a FAT formatted filesystem containing a file called config.json. This file can be edited to change various parameters of the firmware; be sure to edit “wifi_ssid” and “wifi_password” if you want to use notifications.

Notifications

Notifications are sent via the ntfy.sh service. Mobile applications are available for iOS and Android via the app store on those platforms. You can also receive notifications in a desktop browser. The URL for your specific trap is displayed as a QR code on the e-Ink display, and is based on the hardware ID of the microcontroller.

LED Status Colors

The status LED may display the following colors

Red	The trap has encountered an error and shut down
Purple	The trap is configuring its onboard devices
Blue	The trap is performing its self-test and calibration routine
Yellow	The trap is arming
Green	The trap is armed
White	The trap has been triggered