MonsterShield

Quick Start Guide

8/20/2012
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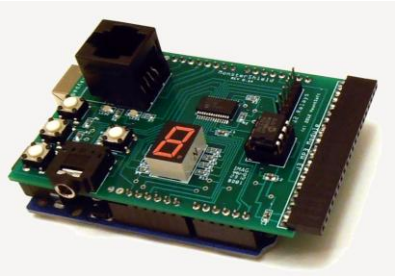
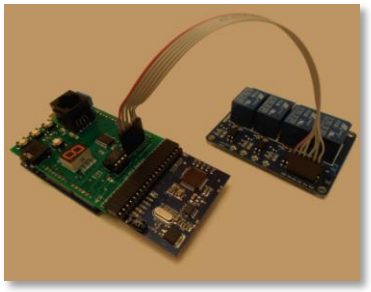
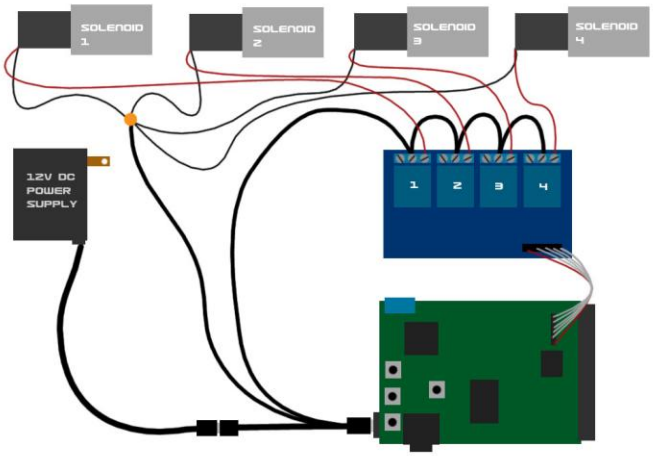
1. **Connect MonsterShield to Arduino:** Carefully connect the Arduino to the MonsterShield. The MonsterShield has 2 banks of 8 pins and 2 banks of 6 pins on the bottom of the board that are designed to connect to the Arduino. Hold the Arduino in one hand and hold the MonsterShield in the other. Line up the MonsterShield so that the end with MP3 module connector is opposite the end on the Arduino that has the power & USB connectors. Make sure that the right-most pins on the MonsterShield line up with the right-most headers on the Arduino. Make sure the pins are lined up and seat the MonsterShield all the way down. Note that some Arduinos can accept additional pins that the MonsterShield does not have. It should look like this when properly connected:

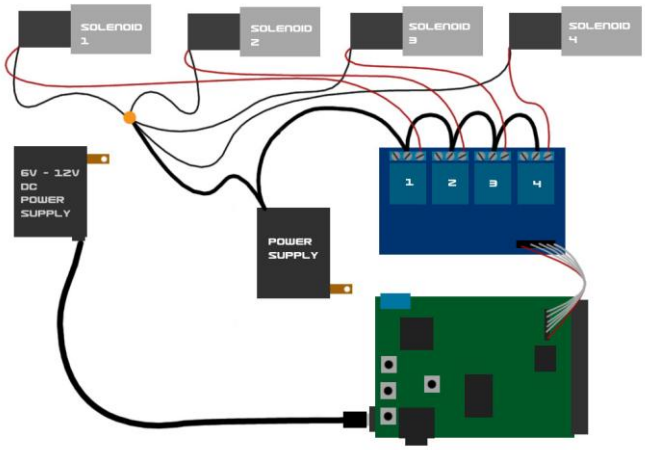


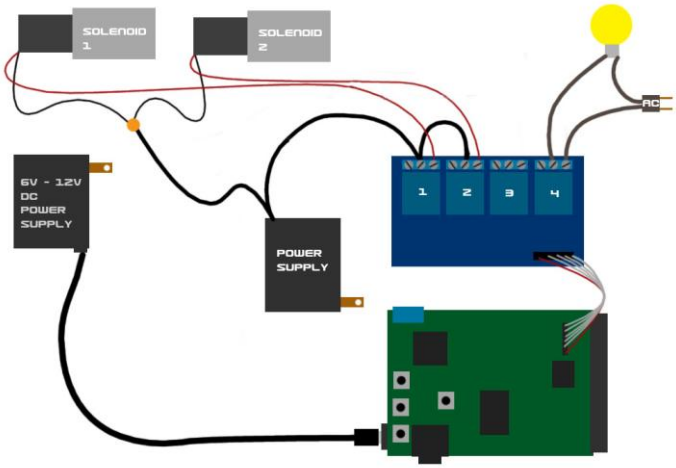
2. **Connect Relay Module to MonsterShield**: Connect one end of the included ribbon cable to the J2 6-pin header so that the red wire on the ribbon cable goes to the left-most pin (labeled GND) on the MonsterShield. Insert the other end of the cable to 6-pin header on the relay module so that the red wire is connected to the pin that is labeled GND.



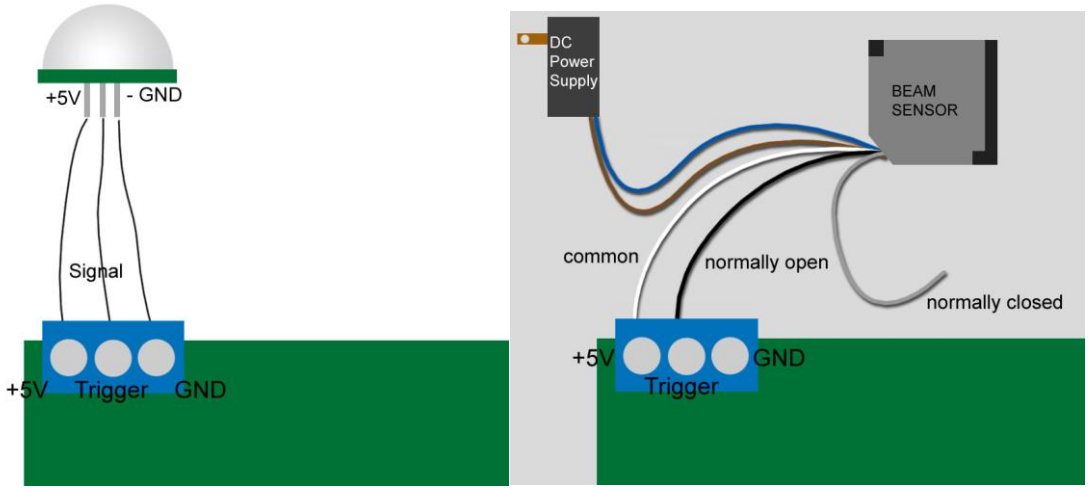
3. **Connecting devices to be controlled by the relays:** How you connect devices to the relays depends on what devices you plan to control and what the power requirements are. You can connect devices to be normally closed (power is on normally, but power switches off when relay is turned on) or normally open (power is off normally, but power switches on when relay is turned on). Here are some common ways to connect devices to the relay module:



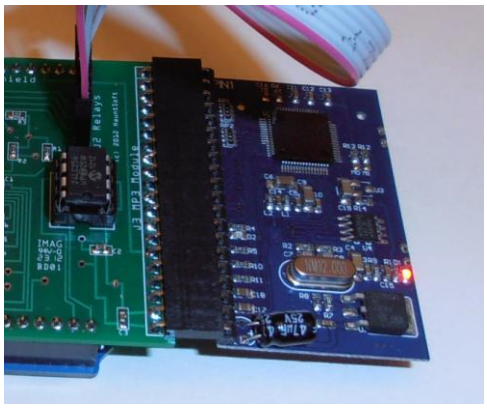




4. **Connect Trigger:** Connect a trigger (such as a motion sensor, push button, or beam sensor) to the J1 blue screw terminals on the MonsterShield. The screw terminals are labeled as **+5V**, **Trigger**, and **GND**. Note that some trigger types only require the +5 and the Trigger terminals (such as a beam sensor or a push button). Triggers that require +5V to operate will use all 3 terminals (such as the Parallax PIR motion sensor). If your trigger has different power requirements (such as a beam sensor that requires 12V), you will need to connect a separate power supply to the trigger (or if it is a 12V trigger you can use the 12V 2A power supply and the splitter cable to provide power to the trigger) and you use the +5V and the Trigger terminals on the switched leads for the trigger. For example, the Fright Props beam sensor has 5 wires. Two wires supply 12V power to the sensor. The other 3 wires are common, normally open, and normally closed. You would use only the common and normally open or the common and normally closed (but not all 3 at the same time), and these would be wired to the +5V and the Trigger terminals, but it doesn't matter which wire goes to which of the terminals.

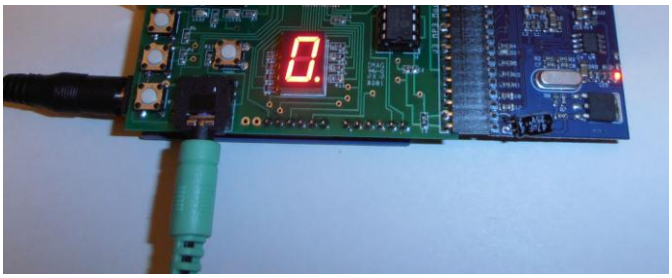


5. **Connect Optional MP3 module**: If you purchased the optional MP3 module, connect it to the J3 MP3 Module header on the MonsterShield so that the SD card slot is on the bottom. Note that it is easier to install and remove the SD card from the MP3 module with the MP3 module removed from the MonsterShield. Copy MP3 files to your SD card and name them 000.mp3 through 014.mp3. The 3 digit number corresponds to the animation slot it will be played with.



Connect a 1/8" stereo jack to the MonsterShield and connect this to a powered amplifier or speaker system. Note that the output from this jack is headphone level, which means it is pre-amplified for headphones. This may cause damage or distortion to sensitive equipment that is not designed to handle this level. This can be

addressed by using a small adapter cable that has a built-in volume control. Adjust the volume until the distortion disappears.



6. **Connect Power to Arduino:** Connect your power source (6V DC to 12V DC) to the Arduino. If you are using the 12V 2A power supply and the optional splitter cable, connect the splitter cable between the power supply and the Arduino. Make sure that the bare leads on the other end of the cable are not touching each other. The MonsterShield will power up and should display "-" for a second or two. It may also flash "F" for a few seconds, which indicates it is performing an automatic factory reset. When complete, the MonsterShield should display a "0". If the single digit display does NOT display any digit and LED2 is flashing on and off, then this means you have not loaded the MonsterShield code onto the Arduino. You will need to download the firmware from http://www.hauntsoft.com/downloads and you will need to install it using the Arduino IDE (which can be obtained from http://www.arduino.cc).
7. **Using the optional keypad:** Attach the optional keypad using a standard cat5 network cable. When connected, the keypad has two modes: Normal & Record.
    a. In Normal mode, you can cycle through all the animation slots by using the first 2 buttons (next and previous). The 3rd button acts as a toggle for enabling or disabling the currently selected animation slot. The 4th button manually triggers the prop. Pressing the 4th button while an animation is running will stop the animation.
    b. Pressing the 5th button will put the MonsterShield in record mode. The currently selected animation slot will begin flashing on the single digit display. Press the first 4 buttons to turn the relay outputs on and off as desired. When finished recording, press the record button again. Now test your animation by pressing the play button.
8. **Manually triggering your prop:** Press the "mode/trigger" button on the MonsterShield or the "play/stop" button on the keypad to manually trigger your prop.
9. **Selecting an animation slot:** Press the "prev/enable" button or the "next/ambient" buttons on the MonsterShield repeatedly to cycle through the animation slots. Don't hold these buttons down because this activates their secondary functions.
10. **Recording an animation**: Select the animation slot you wish to record and press the record button the keypad. The selected slot number will begin flashing indicating you are in record mode. Begin pressing the 4 output buttons as desired to control the 4 relay outputs. When finished recording, press the record button.
11. **Disabling or Enabling an animation slot**: Select the animation slot you want to enable or disable. You can tell if an animation slot is enabled or disabled by the decimal point on the single digit display. If a slot is enabled, the decimal point will be lit. To toggle the slot between enabled & disabled, simply press and hold the "prev/enable" button on the MonsterShield for 1 second and then release. You can also press the "enable" button on the keypad to toggle the slot.
12. **Setting Playback mode**: There are currently 3 playback modes: Sequential, Single, & Random. You can cycle between the playback modes by pressing and holding the "mode/trigger" button on the MonsterShield for more than 1 second and releasing. The MonsterShield will flash "P" and "1", "2", or "3". "1" means sequential mode

(the default). Each time the prop is triggered, the MonsterShield will advance to the next slot after the animation has finished playing. "2" means single mode. The MonsterShield will stay on this slot every time it is triggered. "3" means random mode. Each time the prop is triggered, the MonsterShield will randomly select which animation to play. If Ambient mode is turned on, then slot 0 will never be selected when the prop is triggered.

13. **Ambient mode**: Ambient Mode turns animation slot 0 into an ambient animation that plays in a continuous loop. When the prop is triggered, the slot 0 animation is interrupted and the triggered animation plays. When the triggered animation is finished, the MonsterShield will go back to playing animation slot 0 in a continuous loop. You can toggle the ambient animation on & off by pressing and holding the "nxt/ambient" button on the MonsterShield for more than 1 second and releasing. WARNING: Make SURE you have recorded an animation on slot 0 before turning ambient mode on. If you forget to do this, the MonsterShield will go into an endless loop that cannot be interrupted. You will have to perform a factory reset which will initialize all settings to the defaults and will wipe out all animation on the MonsterShield.
14. **Performing a Factory Reset**: If you need to perform a factory reset, press and hold the "prev/enable" button on the MonsterShield and then press and release the "reset" button while continuing to hold the "prev/enable" button. The MonsterShield will reset and begin performing a factory reset to the defaults. When the letter "F" begins rapidly flashing, you may release the "prev/enable" button. When the flashing stops the MonsterShield should be on slot 0. The Factory Reset is now complete.
15. **Connecting to your computer:** Before you can begin using the MonsterShield with your computer, you will have to install the Arduino drivers. Download the Arduino IDE from http://www.arduino.cc and unzip it to your computer. Connect the MonsterShield to your computer using a standard USB printer cable. Windows will detect that a new piece of hardware has been added. You will need to tell Windows to look in the Arduino directory's "drivers" subdirectory. Windows should then find and install the appropriate driver for your Arduino. For further information on using the MonsterShield with your computer and with the MonsterShield Editor, please consult the full manual after installing the MonsterShield Editor software from http://www.hauntsoft.com/downloads.

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