Recreation manual

Introduction

This recreation manual has been made to provide any person willing to make the nerf gun attachments with the possibility of doing so.

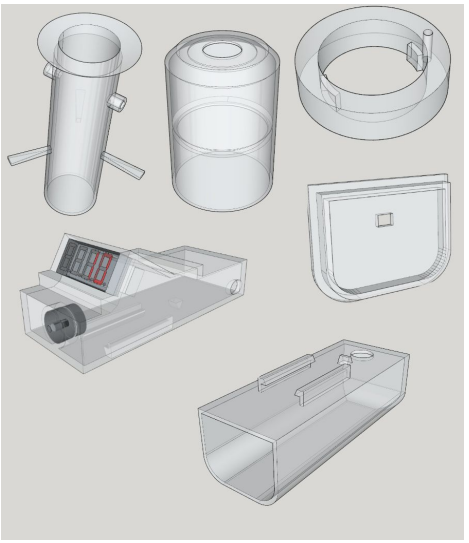
These modifications and attachments are designed to equip your nerf gun with sensors necessary to provide you with magazine alarms as well as statistical data.

1. Start 3D printing these parts out. You will be printing a top rail attachment, a muzzle attachment and under-barrel attachment. Some of these come in multiple parts

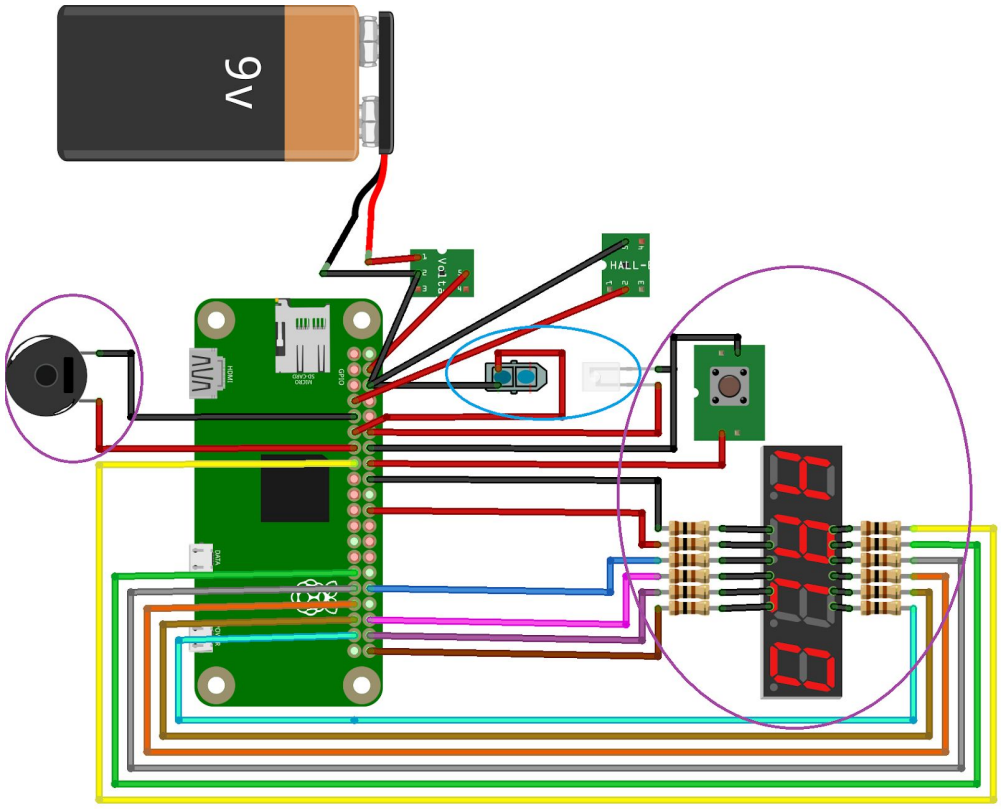
   Do note that the scope attachment has the buzzer and counter as props in its picture.

   The files you'll be printing can be found here:

   3D files



2. While the parts are printing, start creating the circuit. Do not attach the battery to the Raspberry Pi Zero before all of the circuitry has been completed. Build it according to this schematic below, and remember to give the components marked in circles plenty of wire, as those will be going to different places on the gun:



The purple circles are components going to the top-rail attachment. These need extra wire length to work with. The blue circle marks the two components going to the muzzle attachment. They also need a bit of extra wire. The button pictured above doesn't need to be there, you'll see why in section **3**

The hall sensor and the voltage divider both stay inside the under-rail attachment, so wire lengthwise, not much care has to be given here.

Be aware that unlike a normal Raspberry Pi, there are no pins to easily attach wires to, so everything has to be soldered. Be aware that the end of the wires running to the display and buzzer should not be soldered to their components, as they have to through a few holes in the enclosures before they're finally where they should be.

3. Start preparing the gun. Remove the attachments the gun game with. This also includes the magazine, as a small magnet has to be attached to the side of it to trigger the hall sensor

4. Install a Raspbian image onto the SD card and place it into the Pi zero. Boot up the system and access it. Download the 3 files HERE and put them into /home/pi/

   Next, go to a terminal and type in:

   ```
   Sudo crontab -e
   ```

   And add the following line:

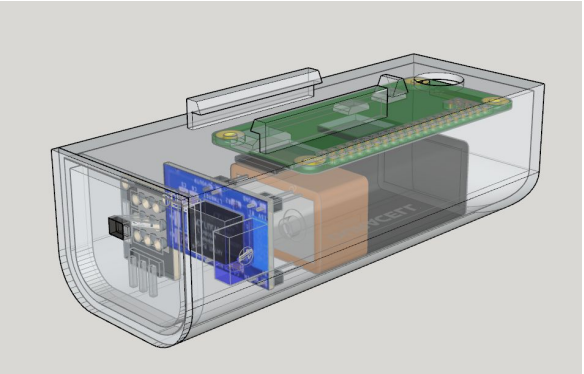
   ```
   @reboot python3 /home/pi/main.py
   ```

   This will make it so that the script which does all of the fancy functions starts running at boot, and if something goes wrong, a simple reboot will fix it.

   Lastly, you want to set it up to log automatically onto your home wifi OR wifi provided by your phone. This can be achieved by simply clicking the wifi icon in the top right and selecting the correct network, then entering the password to it as well.

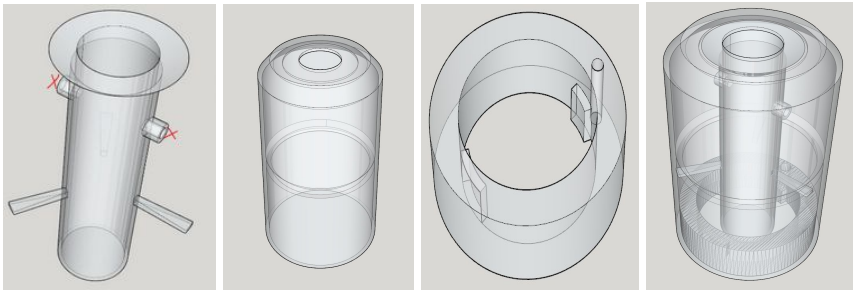
   You can now disconnect the pi.

5. Start by placing the battery at the bottom of the enclosure and secure it by double-sided tape. Continue with placing and securing the Pi on the top of the battery. Place the converter as shown in the picture. From 9v battery run two female end wires that connect to ground and VN of the DC to DC converter. Lastly, the hall sensor has to be glued to the wall closest to the magazine. Attach it to the gun.
   .

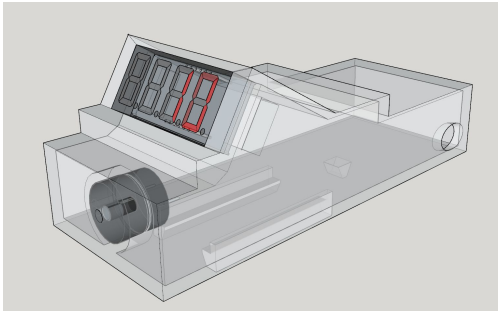


6. Start by inserting IR emitter and receiver in their designated places marked in picture number 1. Wire both the emitter and receiver to the Rpi, then just assemble the parts and attach it to the gun.

1 2 3 4



7. Attach the wires to the RPi first, then run them up the gun and through the wire hole in the attachment. Connect both the buzzer and the screen and then carefully place them in their designated places.



8. Attach all the attachments on the gun! You are now done and can see statistics associated with the nerf gun HERE

Happy firing!