



# Drone Disabling Device Operation Manual

Team 13



FAMU-FSU  
College of Engineering

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## EQUIPMENT NEEDED

(1) 5/16" Allen wrench

(1) 1/4" Allen wrench



(1) 7/16" socket wrench



(1) Phillips Head Screwdriver

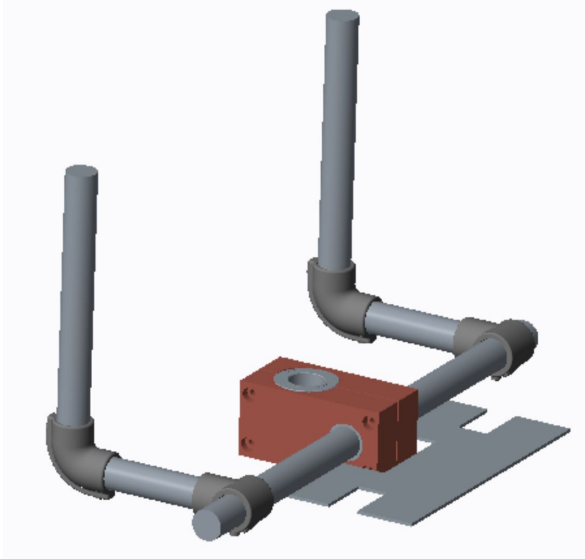


(2) AA Batteries

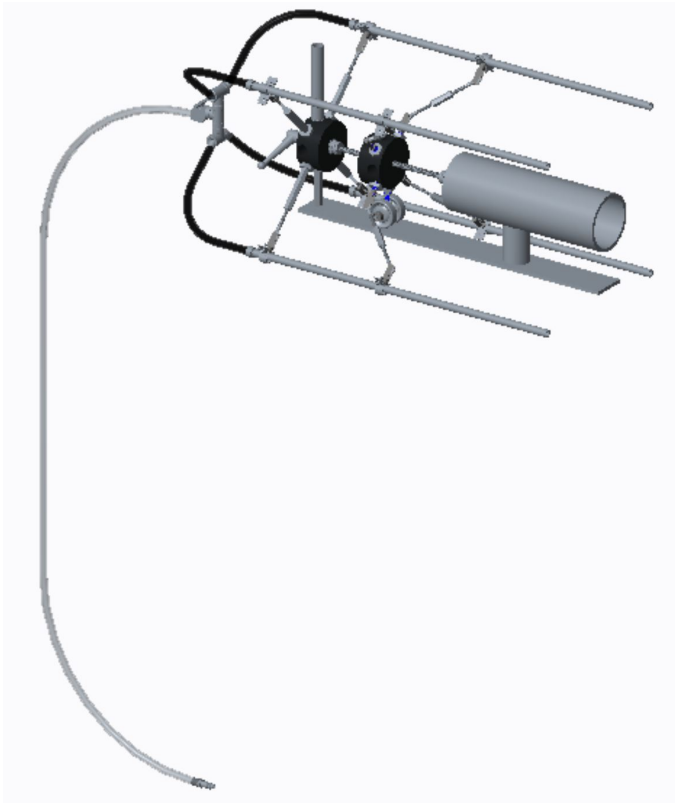


## **PARTS LIST**

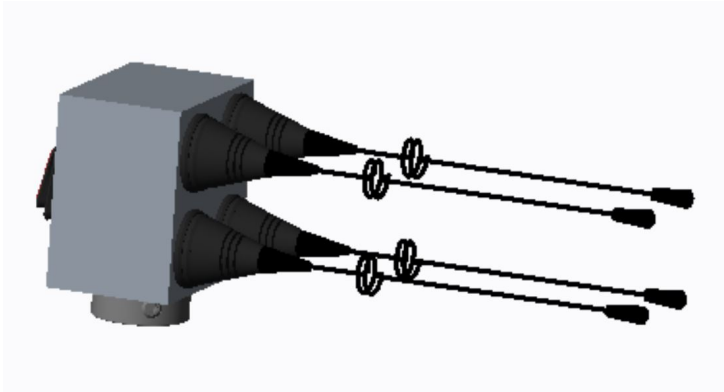
(1) Aiming system



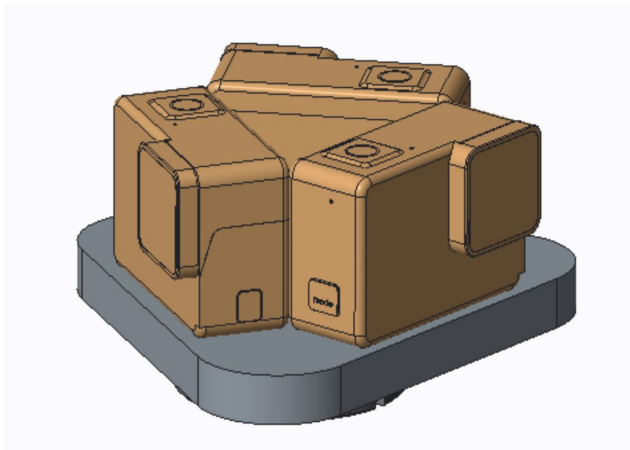
(1) Weighted Net system + Net



(1) Radio Frequency Box system



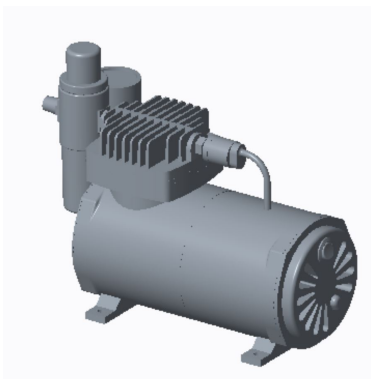
(1) Detection system (includes 3 SJCAM SJ4000 Cameras)



(1) Pyle Pro 6' Tripod Speaker Stand



(1) Kobalt 8-Gallon Portable Electric Horizontal Air Compressor



## **HOW TO ASSEMBLE (SET UP)**

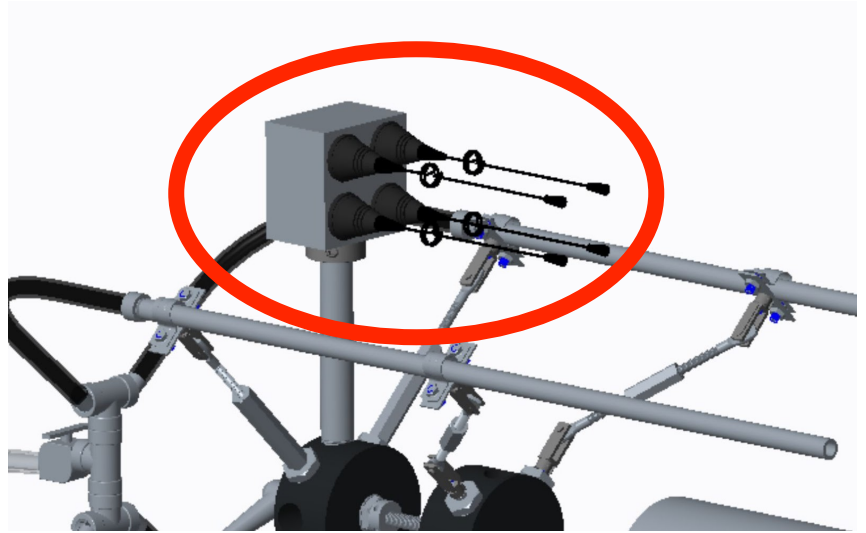
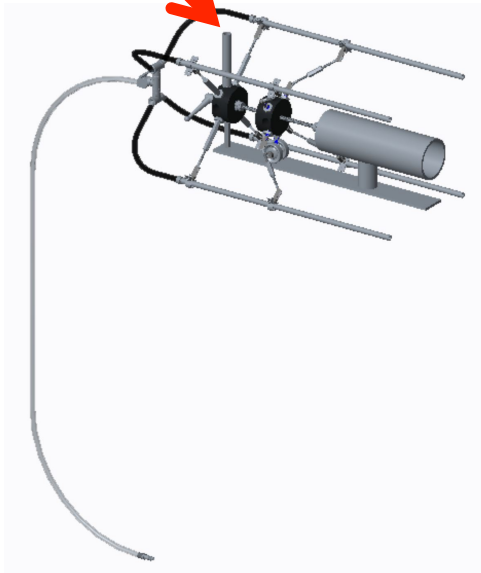
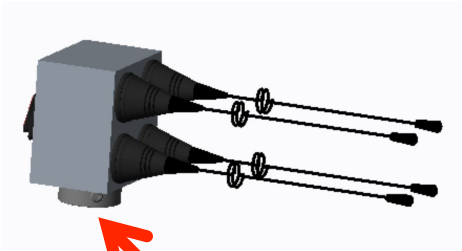
1. Set up the speaker stand by unscrewing the knob slightly extending the inner pole up about 1 foot and then tighten the knob to secure the pole.



2. Place the compressor underneath the speaker stand.

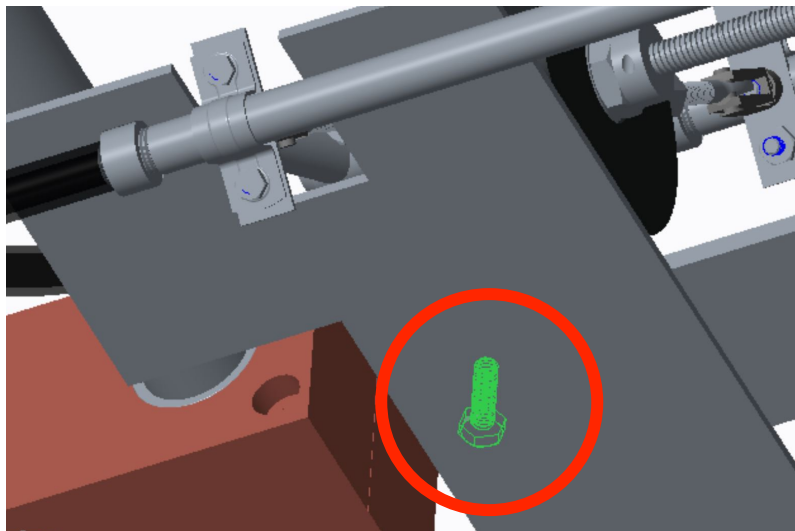
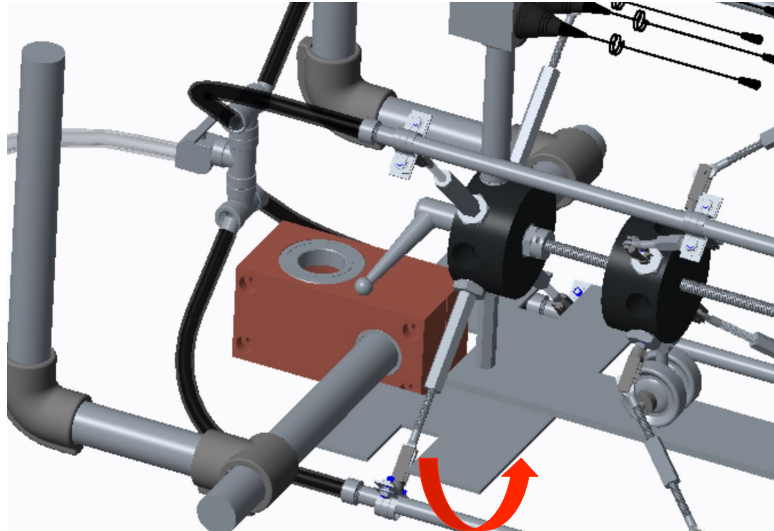


3. Connect the radio frequency box system to the weighted net system with the use of the 5/16" Allen wrench to lock the setscrew in place.

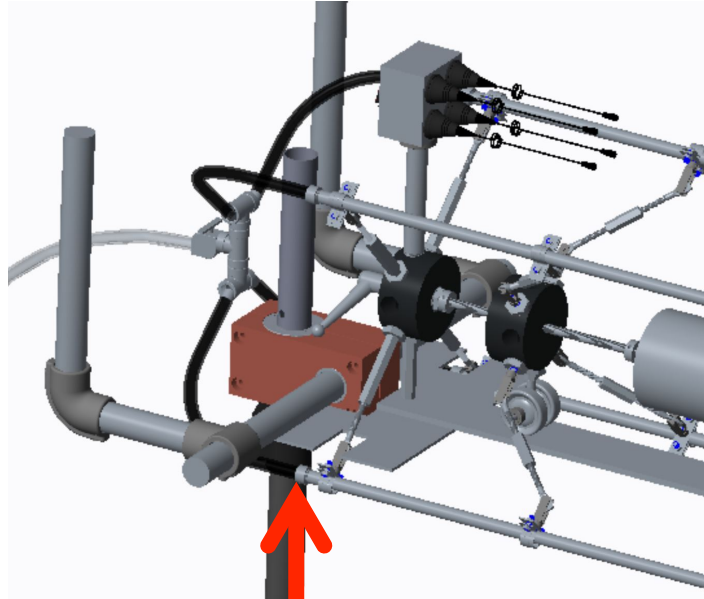




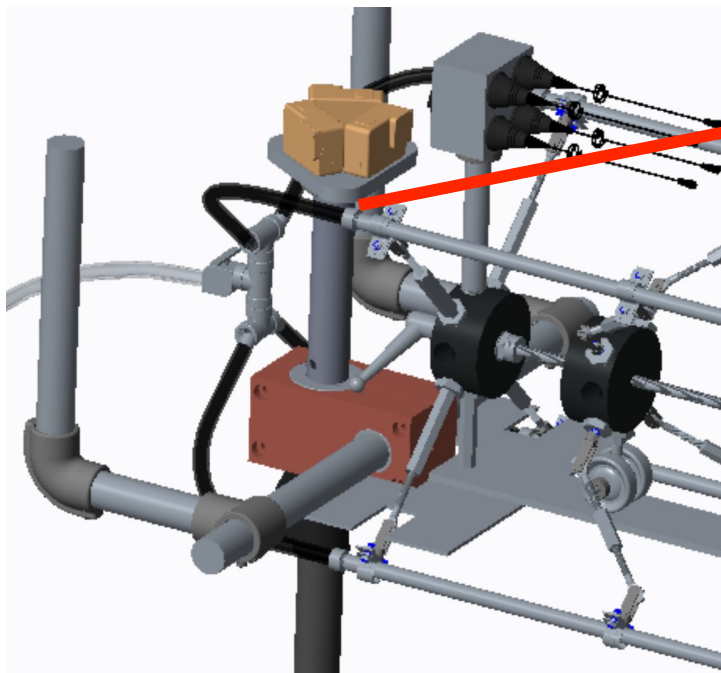
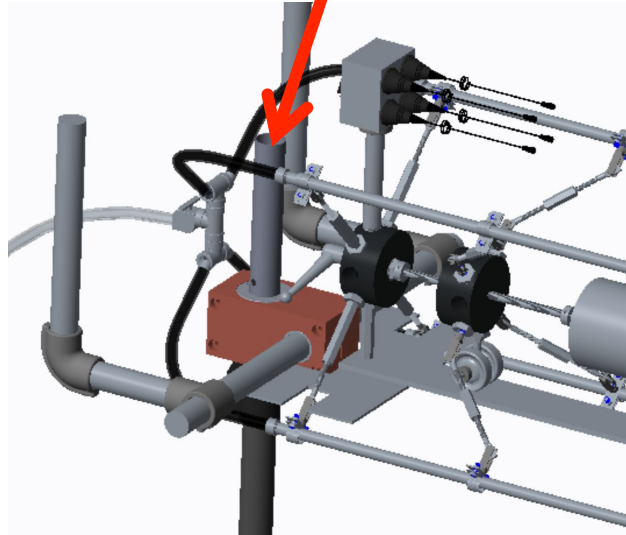
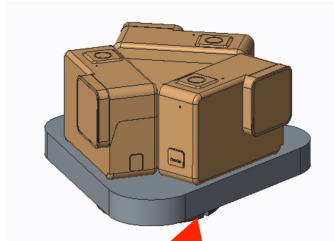
4. Connect the weighted net to the aiming system with the 7/16" socket wrench. Second figure below shows the bottom view of where the bolt is screwed in.



5. Slide the aiming and weighted net system onto the inner pole of the speaker stand.

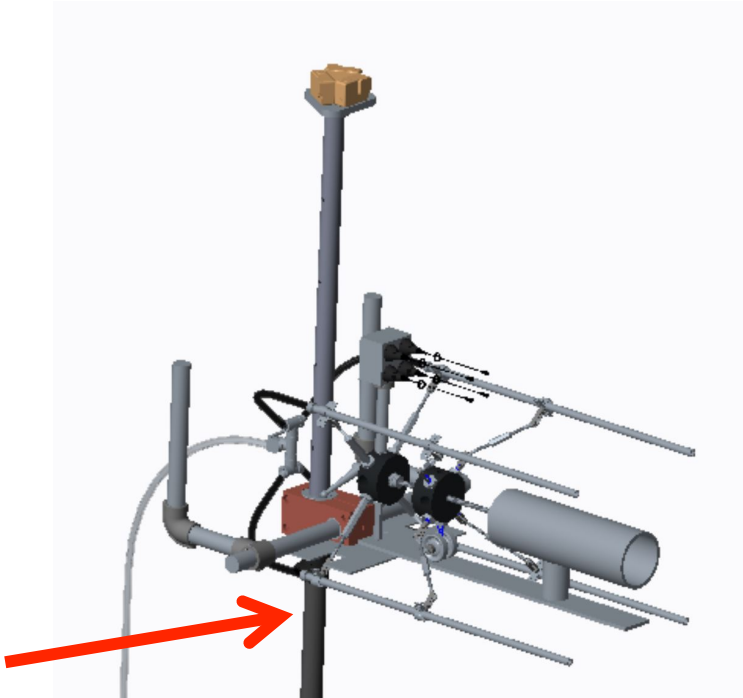


6. Attach the detection system to the top of the inner pole of the speaker stand with the use of the 1/4" Allen wrench to lock the setscrew in place. The power cord attached to the detection system must be inserted down the inside of the inner pole of the speaker stand.



**Screw setscrew into the inner rod of the speaker stand.**

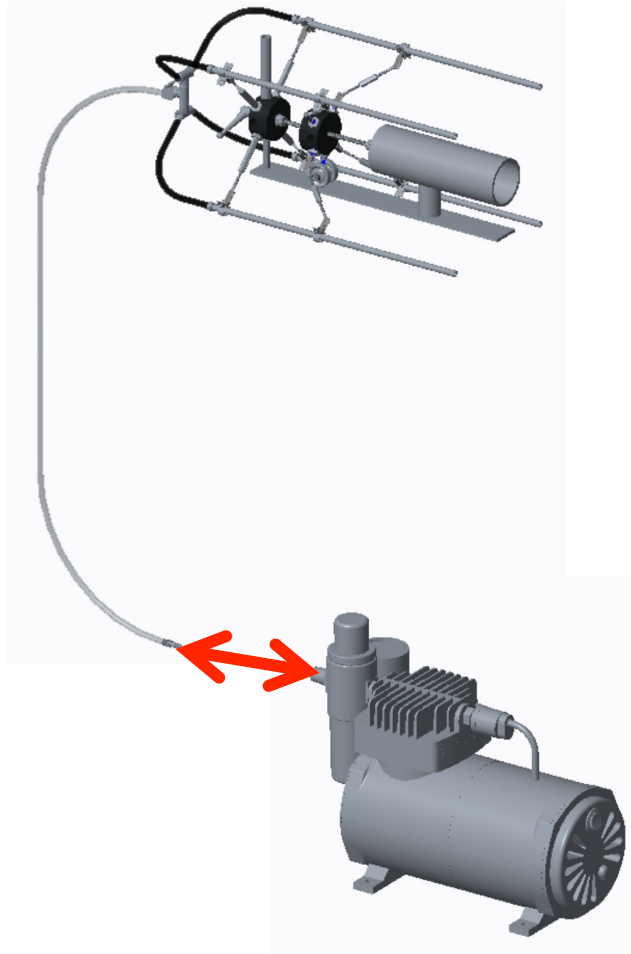
7. Once the all the systems are attached on the speaker stand, hold the inner pole.
8. While holding the inner pole beneath the entire system, unscrew the knob on the speaker stand and extend the inner pole to desired height.



9. Tighten the knob on the speaker stand and place the pin through the lowest hole.



10. Connect the air hose from the weighted net attack to the compressor.



## **HOW TO TURN ON DEVICE**

### **Before assembling for the first time:**

1. Remove the four (4) screws on RF interference box using Phillips screwdriver and remove cover.
2. Insert two (2) AA batteries into battery holders making sure insert positive terminals of batteries towards the positive end of the terminal as marked by the plus (+) sign.
3. Replace cover on RF interference box and hand tighten the four (4) screws.
4. Check that RF interference box has power by turning the switch to the on position and confirming the red LED is illuminated. If red LED does not illuminate, check that the batteries are in the proper orientation.

### **Trained user assembles device following these steps:**

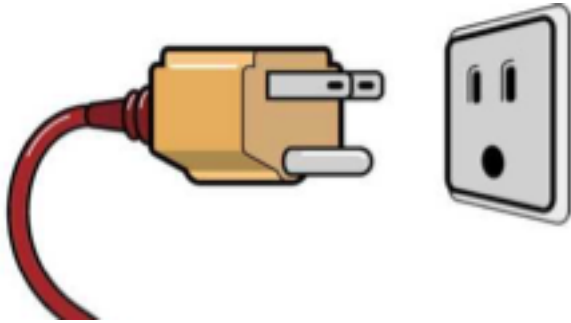
1. Make sure the switch for the radio frequency switch is in the OFF position.



2. Make sure that the cameras are powered OFF.



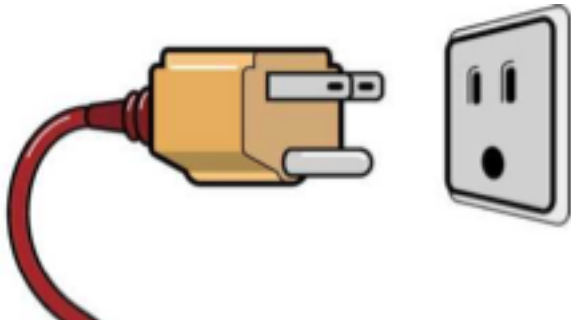
3. Plug in the power cord that is attached to the detection system into a standard 120V outlet.



4. Make sure the switch on the compressor is in the OFF position.



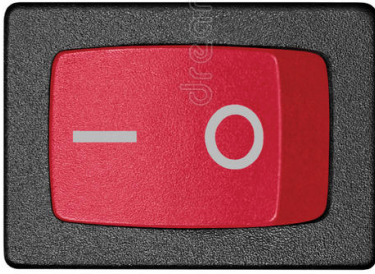
5. Plug in the compressor into a standard 120V outlet.



6. Turn the switch for the compressor ON.



7. Turn the switch on the cameras ON.



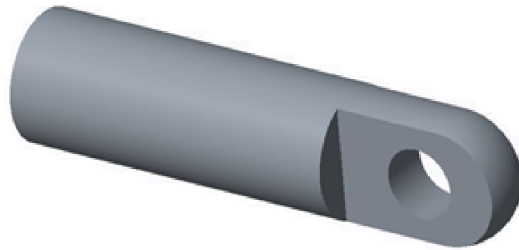


## **HOW TO OPERATE DEVICE**

1. Set compressor pressure to 150 psi.
2. Load the net (see explanation below).

### **Loading the net:**

- Lay net out on the ground fully extended.
- Grab net from the middle letting the projectile slugs on the four corners dangle. Visual representation of slug is shown below.



- Slowly fold the net in 6" increments from the hand holding the net center to the twine connecting the net to the projectile slugs. (Ensure the net does not tangle)
  - Load folded net into tube between the launcher pipes of the weighted net.
  - Carefully load one projectile slug into each launcher pipe.
  - Push metal projectiles to the end of barrel (net is now ready to launch).
3. Wait for detection system to notify when a drone is in range.
  4. Aim the RF system at the target drone using the aiming handles.
  5. Press the switch to turn on power to the RF attack.

### **If the drone continues to fly or hover:**

- Adjust the angle of the launcher pipes by turn the handle attached to the lead screw that runs through the center of the weighted net support structure (picture). Turn the handle right to widen the launcher pipes for close targets. Turn the handle left to narrow the launcher pipes for far away targets.

- Aim the weighted net attack at the target drone using the aiming handles.
- Turn the valve located on the end of the air hose between the two aiming handles. This will release the pressure from the air compressor, which will launch the net.
- Reload net.

## **HOW TO TURN OFF THE DEVICE**

1. Switch the radio frequency system box to the OFF position.
2. Switch the cameras into the OFF position.
3. Turn the switch on the compressor into the OFF position.
4. Unplug the compressor, radio frequency, and detection system (cameras) from the standard outlet.

## **HOW TO DISASSEMBLE AND CLEAN UP DEVICE**

1. Make sure that all systems are in the OFF position.
2. Disconnect the compressor from the air hose.
3. Remove the pin that locks the inner pole of the speaker stand in place.
4. Unscrew the knob on the speaker stand and lower entire system to desired height in order to remove the aiming, detection, weighted net, and radio frequency box systems.
5. Tighten the knob.
6. Pull and remove the power cord attached to the detection system from the inside of the inner pole of the speaker stand.
7. Detach the detection system from the top of the inner pole of the speaker stand by using the 1/4" Allen wrench to unlock the setscrew.
8. Slide the aiming and weighted net system off from the inner pole of the speaker stand.
9. Disconnect the weighted net from the aiming system by using the 7/16" socket wrench.

10. Disconnect the radio frequency box system from the weighted net system by using the 5/16" Allen wrench to unlock the setscrew.
11. Remove the compressor from underneath the speaker stand.
12. Unscrew the knob on the speaker stand and lower the inner pole all the way in order to close and store it.

## **HOW TO STORE DEVICE**

1. Device may be stored assembled or disassembled, according to operator preference.
2. Net should be folded into a square to prevent tangling and fraying.
3. Store in a dry and cool place (20-25°C and relative humidity 40-60%) to prevent rust, warping, or deterioration.