The Robins Bat Counter

User Manual

Table of Contents:

1. Installation
2. Accessing data
3. Maintenance
4. Troubleshooting

Installation:

1. Adhere the inner sensor box to the back of your bat box, near the center, around 3 inches from the bottom. The sensor should be roughly in the center of the landing platform.
2. Ensure all electronics are properly connected
3. Attach the top cover of the sensor box to the back of the box. If using screws, ensure that they are short enough to not pierce the landing platform.
4. If desired, apply a waterproof sealant, such as a silicon based caulk, around the seams of the outer box to ensure the electronics are protected.

Accessing Data:

1. Remove top cover from sensor box
2. Plug one end of a USB type C cable into the onboard Arduino
3. Plug the other end of the cable into a laptop
4. Launch the Arduino IDE
5. In the IDE, select which port the Arduino is plugged into in the Port field, and select Arduino Nano in the Board Field (see below screenshots) NEED TO ADD STILL
6. Launch the serial monitor, if needed tap the sensor box once to log a value to the monitor
7. To reset the bat count, click the yellow rectangular button on the board
8. Once data is logged, reinstall the top cover and add a waterproof sealant if desired

Maintenance:

The only maintenance the sensor requires is a fresh battery to be installed every 5 months.

1. Remove the top cover
2. Carefully remove the Arduino
3. Unclip the old battery.
4. Install a new 9 volt battery
5. Reinstall the Arduino
6. Reinstall the top cover and add a waterproof sealant if desired

Troubleshooting

1. Sensor not detecting any bats
    a. Ensure both wires from sensor are plugged into the correct pins (GND and A0)
    b. Ensure both resistors are plugged into the correct pins (GND and A0)
    c. Ensure vibration sensor is snugly mounted to the bottom of the inner sensor box
    d. If needed, changing the “threshold” value in the Arduinos code can allow for more or less sensitivity, a lower value will allow for lighter impacts to be registered, at the risk of other vibrations being counted as bats landing, such as from bats moving within the box
2. Sensor falsely detecting bats
    a. First ensure that no bare wires from the sensor are touching the resistors or each other
    b. Then either:
        i. Increase the “threshold” value in the Arduino code
        ii. Remove one resistor from the GND and A0 pins
3. No LEDs on the Arduino are lighting up
    a. Ensure the battery is plugged into the GND and VIN pins on the Arduino
    b. If nothing changes, try a new battery