ClippyBird Hardware Guide

Turn your Raspberry Pi Into a Smart Bird Feeder

Intro

ClippyBird transforms your Raspberry Pi into a high-tech bird feeder camera, offering a budget-friendly and engaging way to connect with nature. For just $150, this open-source software empowers you to build a smart bird feeder that not only captures stunning visuals but also employs machine learning to identify visiting bird species. With features such as real-time notifications and local storage options, ClippyBird enhances your bird-watching experience, allowing you to observe and learn about the feathered visitors right from your backyard. Whether you're a seasoned birder or a curious hobbyist, ClippyBird provides an accessible and interactive way to explore avian life through technology.

Setting Up Hardware

Item	Link
Amazon Basics Micro SDXC Memory Card with Full Size Adapter, A2, U3, Read Speed up to 100 MB/s, 128 gb, Black	https://www.amazon.com/dp/B08TJRVWV1/?coliid=I18VJ68D9SY9N4&colid=2WIH7SBTB3A9A&psc=1&ref_=list_c_wl_lv_ov
Raspberry Pi 4	https://www.amazon.com/dp/B07TC2BK1X/?coliid=I2N15931PMAJZP&colid=2WIH7SBTB3A9A&psc=1&ref_=list_c_wl_lv_ov
Junction Box	https://www.amazon.com/dp/B07PDV2F2N/?coliid=I2RV9N0VN557EP&colid=2WIH7SBTB3A9A&ref_=list_c_wl_lv_ov_lig_dp
USB C Cable and Brick	https://www.amazon.com/sspa/click?ie=UTF8&spc=MTo4ODYwMzE1NTQ5OTc5MTIwOjE3MTQ1MDU3Mzg6c3BfYXRmOjI Generation%2Fdp%2FB0BTP5PJPG%2Fref%3Dsr_1_1_sspa%3Fcrid%3D1WMN7XSL5GFL8%26dib%3DeyJ2IjoiMSJ9.sqgX 2fkYDA4e5pZbzlWXS87uhoUw7t58KYjHPaBo5wKmJvaaeVGtk8Lv22×3epTLvIoyyBU5ESwM0wBtcFe3qIgoICt7_36PQMDU 8vY2zwrl34.zRnWZxlgbW8lig2RGbc27YkoHYxSevBvFVuHBpQTh4E%26dib_tag%3Dse%26keywords%3D10ft%2Busb%2 1-spons%26sp_csd%3Dd2lkZ2V0TmFtZT1zcF9hdGY%26psc%3D1
Clear Bird Feeder	https://www.amazon.com/Transparent-Suction-Drainage-Detachable-DY-SKTY/dp/B09ZL4WL7P/ref=sr_1_2_sspa? dib=eyJ2IjoiMSJ9.2dfO9qdr_Yufj9mTldpAd3wtQws0Ki2EOkdupWbt1r4lXJfvgukeZB_slOeq6CSClKu_ArToOJel4aWN4gTsF wX38gDaIQ7JvQBf7U3uDRgVDuw5y2BnY5niCKUe2MlHyHxqj6X_LRWdw4t7RXxpK2WutwVAgYZGSx-cEf67NKaAExCugX fhSeTV8T9h4&dib_tag=se&keywords=clear+bird+feeder&qid=1714506065&sr=8-2-spons&sp_csd=d2lkZ2V0TmFtZT1zcF
Suction Cups	https://www.amazon.com/Sponge-Holder-Suction-Replacement-Kitchen/dp/B0BXJF5H48/ref=sr_1_5?crid=24XL2ZALCOL yPEREfvuwRD31tktgBqdWaCUCSIYXNNCSVPNLbpEZds4LgbAVZvVJAmKvWMDya0dMtl4gCJTrJL1KL02v0CYwXHhc1CvF q861NEs6cnT1MNthVZgkaSLhFeImgioKUX3UN5U7pbX6mywhTd8cE3lq23Wq1C5TOCq61jpzoysPUyXVd297bgfRPsk.QGTIc

Total is $151.72

1.) Drill Pilot Hole For USB Cable 3/4 Inch In Junction Box

1a.) Place Raspberry Pi Into Junction Box

2.) Attach USB-C Cable

3.) Plug Webcam In

4.) Hot Glue Suction Cups to Junction Box

5.) Close Junction Box

6.) Attach Bird Feeder To Outside Of Window

7.) Attach Junction Box To Window Via Suction Cups

Setting Up Software

1.) Install Raspberry Pi OS Via SD Card

To install Raspberry Pi OS, start by downloading the latest version of the OS from the official Raspberry Pi website. Next, write the image to a microSD card using imaging software like Raspberry Pi Imager, selecting the appropriate OS version and your SD card. Once the image is written, insert the microSD card into your Raspberry Pi and connect the necessary peripherals like a monitor, keyboard, and mouse. Power on your Raspberry Pi and follow the on-screen instructions to complete the setup and configuration of the OS.

https://www.raspberrypi.com/software/

2.) Ensure Network Is Connected

3.) Connect To Real VNC

a.)First, ensure your Raspberry Pi is running Raspberry Pi OS and is connected to the internet. Open the terminal and update your system with sudo apt update && sudo apt upgrade.

b.)Install the VNC Server on the Raspberry Pi by typing sudo apt install realvnc-vnc-server realvnc-vnc-viewer.
Enable VNC Server to start at boot by going to the Raspberry Pi configuration menu via the terminal (sudo raspi-config), navigating to 'Interfacing Options', and then enabling VNC.
c.)On your other computer, download and install the VNC Viewer application from the RealVNC website.
d.) Connect to your Raspberry Pi by entering the Pi's IP address into the VNC Viewer and authenticate with the Raspberry Pi's username and password.
`ifconfig`

4.) Clone Repo

a.) Update package manager

`sudo apt update`

b.) Install Git

`sudo apt install git`

c.) Clone Repo

```
git clone https://github.com/JacobWoods19/BirdBuddyOS.git
```

4a.) Update Repo (When Needed)

As updates are pushed its important to have the latest version of the software installed

```
cd BirdBuddyOS
git pull origin main
```

5.) Install Packages And Setup Virtual Environment

a.) Enter Repo

```
cd BirdBuddyOS
```

b.) Install virtual env for python

```
sudo apt install python3-virtualenv
```

c.) Create Virtual environment

```
python3 -m venv birdOS
```

d.) Activate virtual environment

```
source birdOS/bin/activate
```

e.)Install requirements

```
pip install -r requirements.txt
```

6.) Create Google Cloud Bucket Key

Allows cloud backup to google cloud image bucket.

```
sudo nano key.json
```

[Paste in Google Cloud Bucket Key]

6a.) Setup Pushover

Create a Pushover Account:
Visit the Pushover website at
https://pushover.net/.
Sign up for an account by providing your email address and creating a password.
Register Your Application:
Once logged in, go to the dashboard and click on "Register an Application/API".
Fill in the application details including the name, description, and type of your application.
Agree to the terms of service and click the "Create Application" button.
After registering, you will receive an API Token/Key. This is crucial for your application to interact with the Pushover API.

7.) Follow On Screen Setup Instructions