

Orchard
Hills Middle
School
Irvine,
California



The Disassemblment of a Yeehaw 3D Printer

Team 8838E
Eclipse
Joaquin

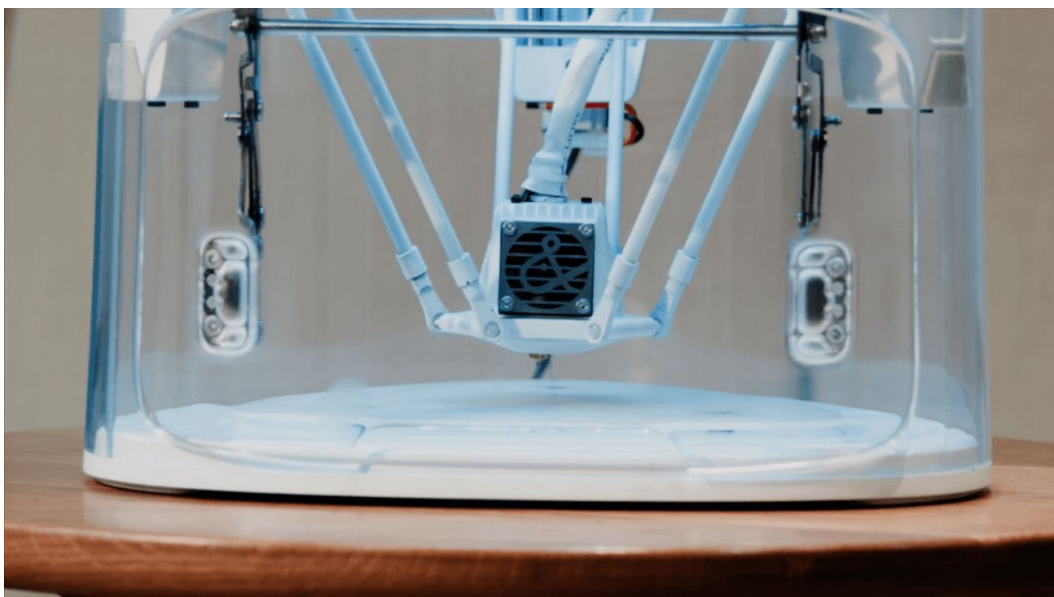
497 words
(excluding titles,
captions, and list
of items)

Introduction

Our team decided to disassemble a Yeehaw 3D Printer. This item uses filling to create 3 dimensional objects through an app. We decided to explore the 3D Printer due to the complex nature of it.



Our Team Nathan (far left), Calyx (left), Kayden (middle back), Zeeshan (middle front), Joaquin (right), and Athena (far right)



Day 1

We researched and took many photos of the printer before the deconstruction to compare it afterwards and to determine where parts went.

Research:

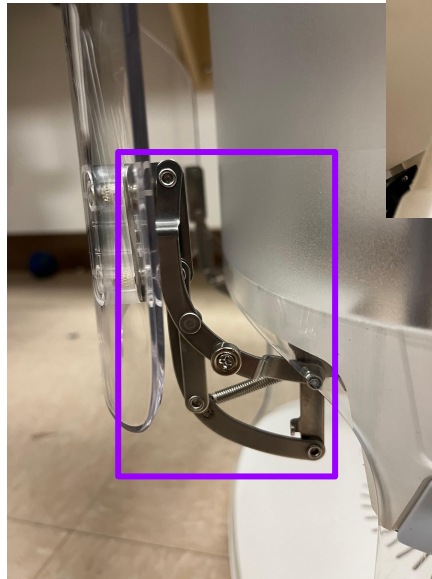
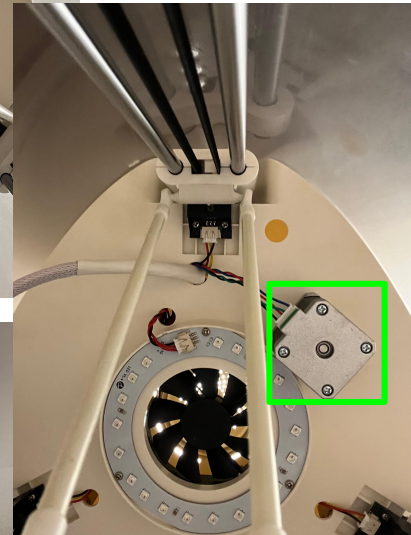
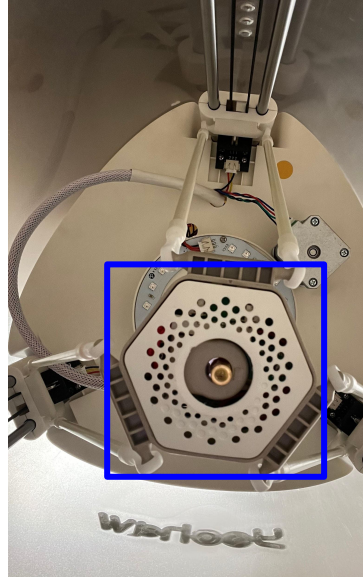
Our team discovered that the company that sells the printer has been disbanded and all websites no longer exist. This is an issue because the information that we gathered was from review websites and not main manufacturers.

- Extruder
- 4 Bar Lift
- Motor

Citation:

<https://the-gadgeteer.com/2016/12/19/yeehaw-3d-printer-review/>

Images taken of the inner working and outer base of the 3D Printer



Side View and Worm's Eye View of the 4 bar lift and inner area respectively

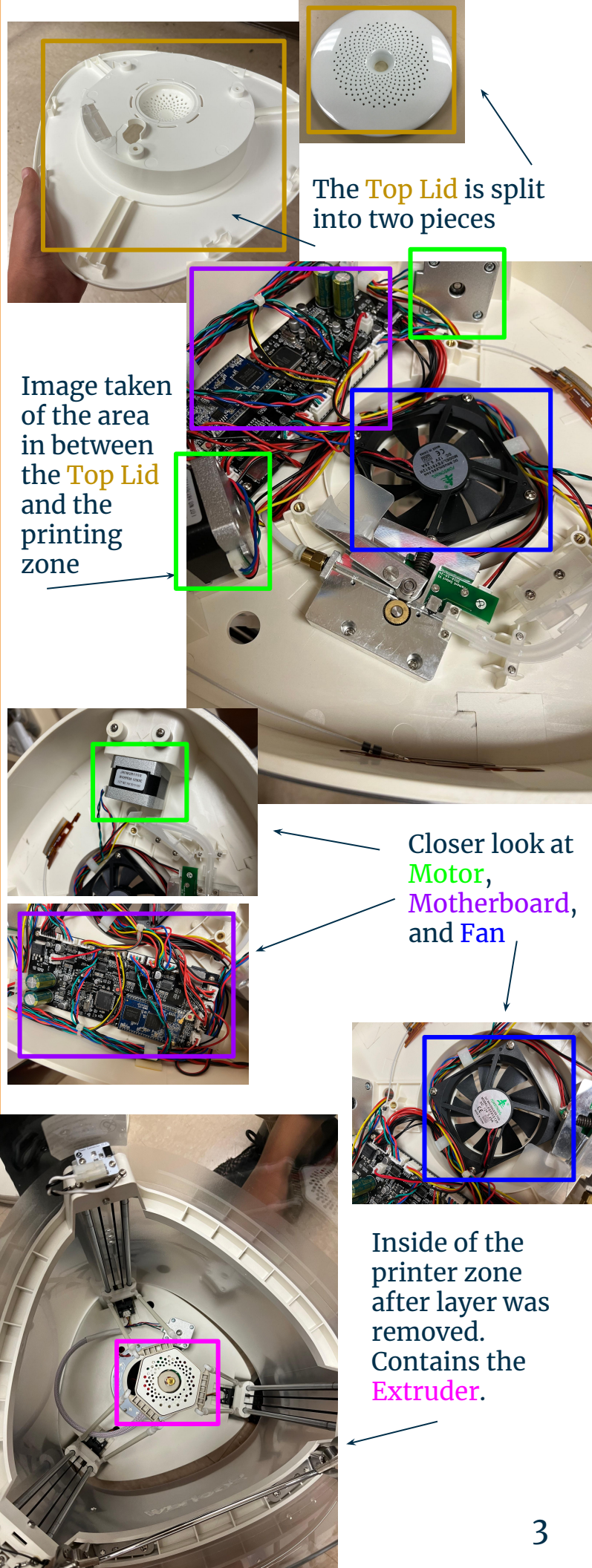
Image of Filament Entry Hole



Day 2

1. To start off, we removed the top lid of the printer and examined the inner workings that were displayed. This included taking photos of the electronics shown.
2. Removed the layer the electronics were sitting on. Took longer than expected due to the wire management being poor and having to remove each wire individually.
3. Revealed the printing zone

- Motherboard
- Motor
- Fan
- Top Lid
- Extruder



Day 3

1. Started from top to bottom slowly detaching each component

- Electronics Lid
- Wire With Tubing
- Bearing Shell
- Linear Rod
- Connectors

2. This left the Extruder. We took photos and documented the insides which included:

- Circuit Board
- Extruder
- Extruder Nozzle

3. After the deconstruction process, we sorted the components

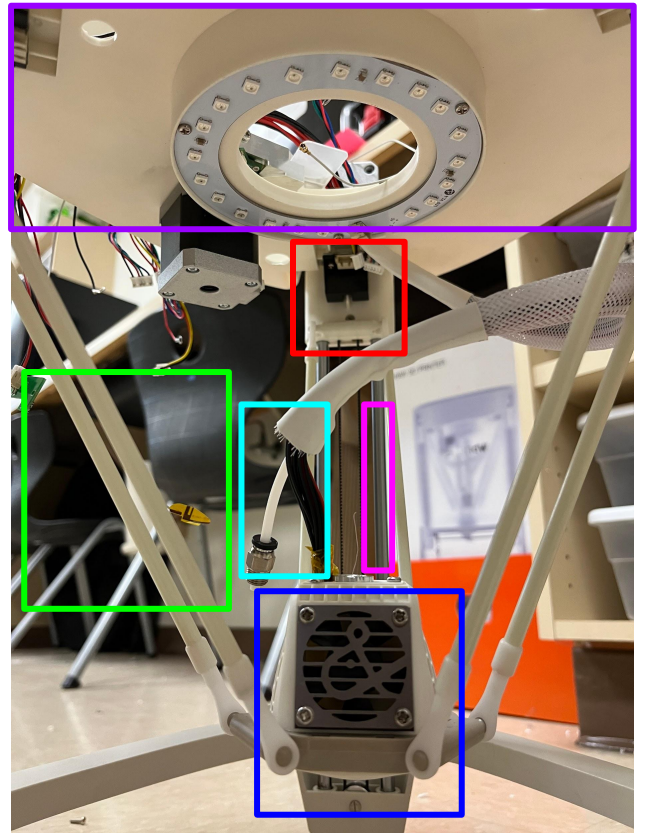
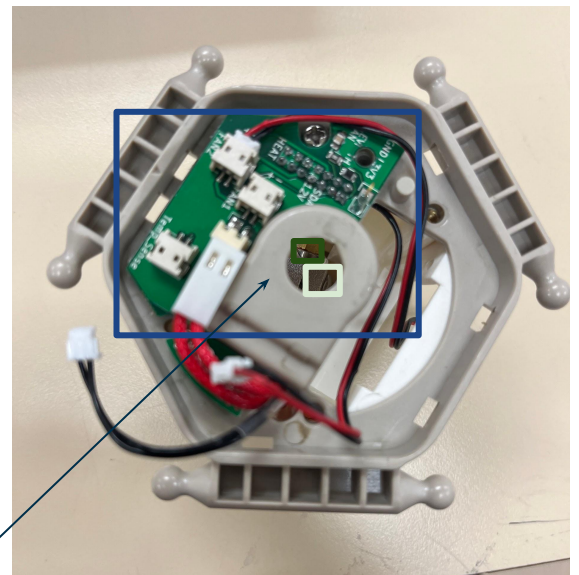


Image of printer after Outer Shell was removed



Extruder and Extruder Nozzle are tucked away in the shell

Final Images: Structural Pieces

Components Key

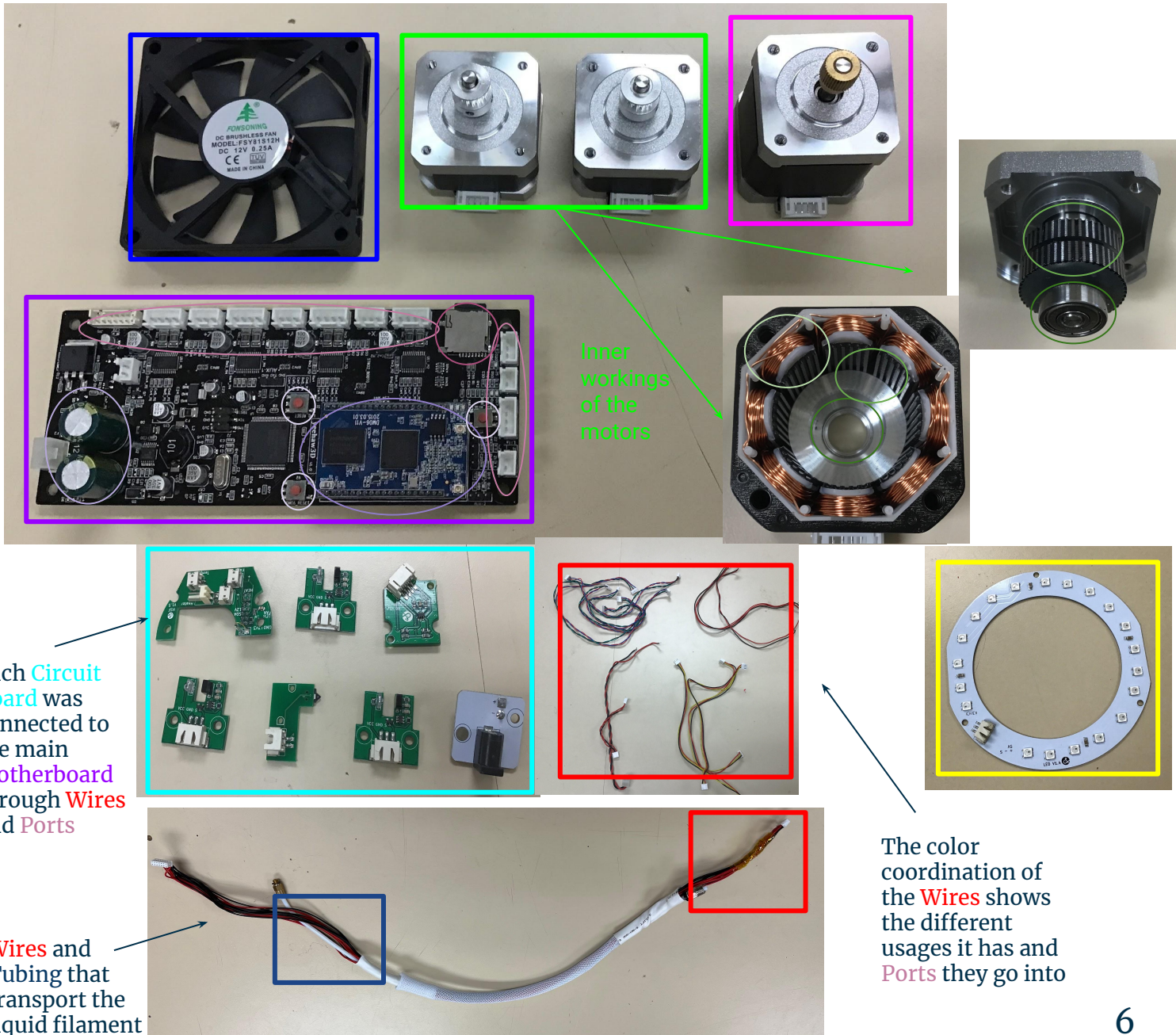
- Outer Shell
- 4 Bar Lift
- Extruder Shell (Top, Middle, and Bottom)
- Clear Plastic Shell
- Printer Shell (1, 2, 3, 4, 5)
- Bearing Shell (Front, Back)
- Connector
- Linear Rod



Final Images: Electronic Pieces

Components Key

- LED Lights
- Fan
- Motherboard
- Capacitor
- Ports
- CPU
- SD Card
- Reset Buttons
- Wires
- Circuit Boards
- Small Motor
- Copper Wires
- Magnet
- Gear
- Large Motor (Contains the same components as it's smaller counterpart)
- Tubing



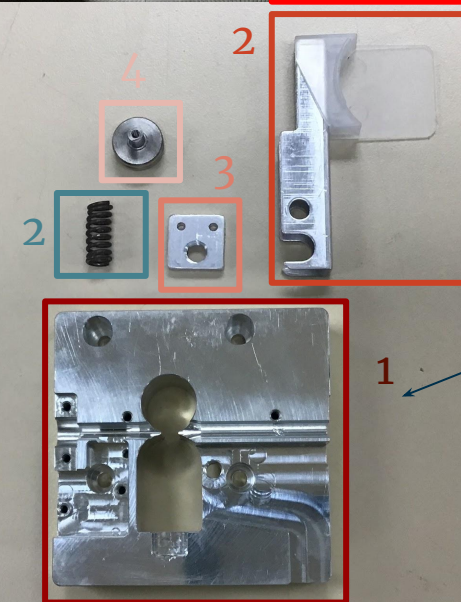
Final Images: Assorted Pieces

Components Key

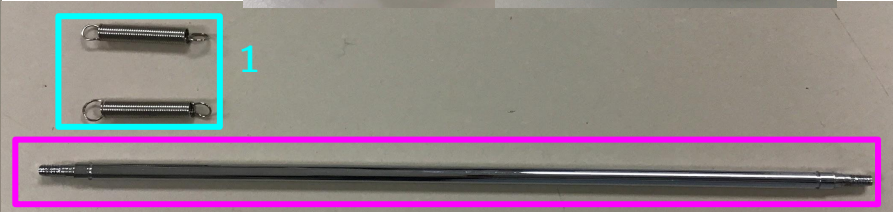
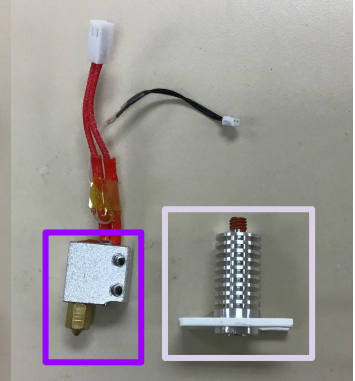
- Screws
- Spacers
- Locknuts
- Axle
- Spring (Type 1, 2)
- Rubber Belt
- Extruder
- Extruder nozzle
- Metal Connector (Size 1, 2, 3, 4)
- Linear Bearing
- Pulley



The many types of **Screws** have been sorted into an Interlocking Organizer. Each **Screw** was used in a different component of the 3D Printer.



Metal Connector (Size 1) has many properties such as holding a motor and transporting liquid filament



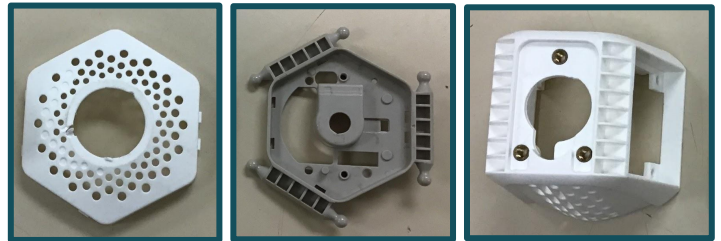
Printer Shell

The Printer Shell holds the printer together and protects it from harm.



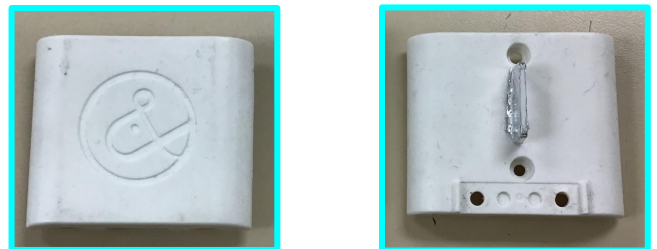
Extruder Shell

Extruder Shell holds together the Extruder and Extruder Nozzle.



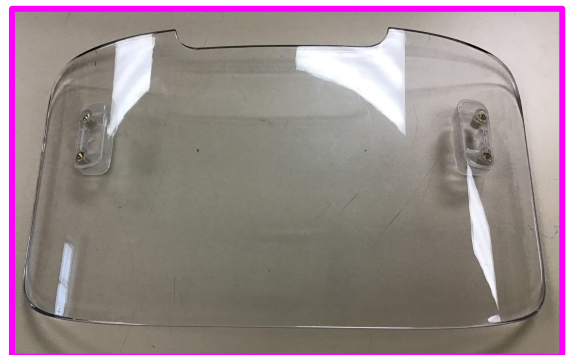
Bearing Shell

The Bearing Shell protects together the bearings.



Clear Plastic Shell

The Clear Plastic Shell is used to block out interference when the printer is operating.



4 Bar Lift

The 4 Bar Lift is used as a door to retrieve the items after being printed.



Linear Rod

Linear Rod is used to move the Extruder while printing objects.



Connector

The **Connector** attaches the Bearing Shells and the Extruder.

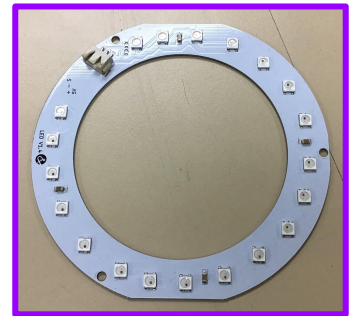


Fan

The plastic **Fan** cools off the plastic and makes it solidify.

LED Lights

The **LED Lights** are used to visualize what the printer is creating.



Springs

Springs are used to store energy, releasing it when an opposing force is applied.

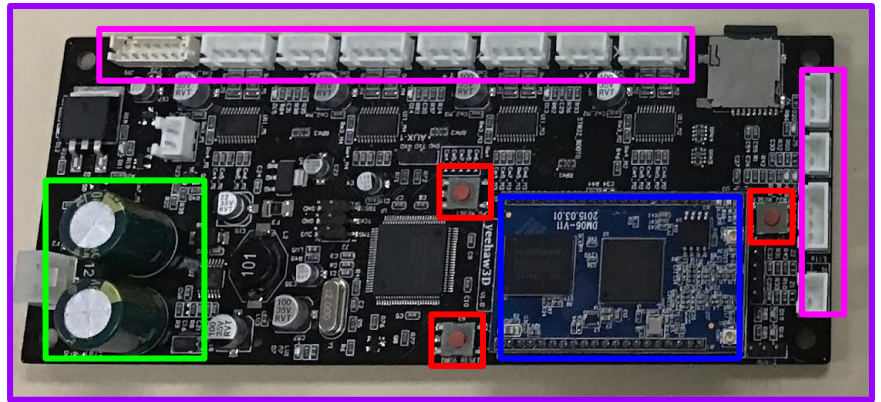


Linear Bearing

Linear Bearings are used to collaborate with making motion.

Motherboard, Reset Buttons, CPU, Ports, and Capacitor

The **Motherboard** is a circuit that communicates data to the other pieces of the system.



Reset Buttons clears the memory and data of whatever it's connected to.

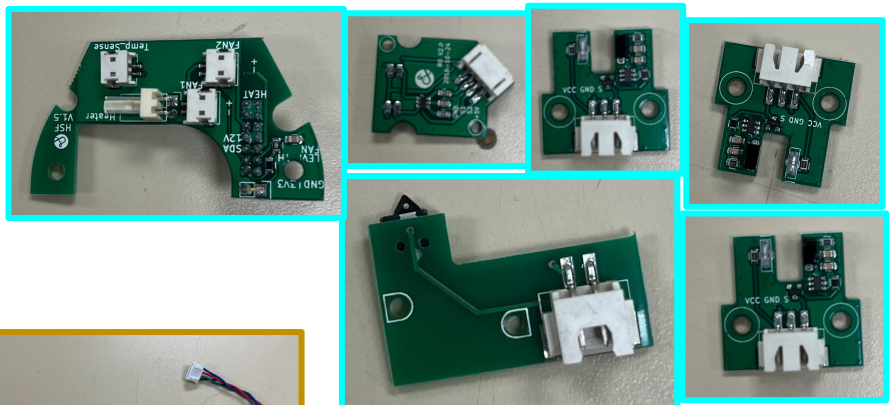
CPU retrieves commands and executes them.

Ports connect two objects together to send data.

Capacitors are used to store electric charges.

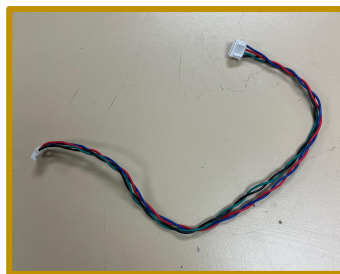
Circuit Board

Circuit Boards contain a circuit, which connects components.



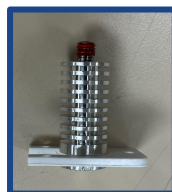
Wire

Wires are used to transmit data.



Extruder and Extruder Nozzle

Extruders and Extruder Nozzles draw the filament and create an object.



Motor

Motors are used to power up the whole printer.



Parts and Their Usages

Summary

We learned when disassembling, how all parts came together to function. Each individual piece played a crucial role in the operation of the printer and nothing was placed just to take up space. We realized how most of the parts that were used in the printer, we also use in VEX Robotics. We found parallels between the motors, pulleys, and many other objects. We can take what we learned from the 3D printer and transfer it into the type of work we do in robotics - which includes building and understanding the fundamentals of engineering.



3D Printers are changing over time to become more efficient. This is why the Yeehaw became obsolete and our teacher replaced them with Robo printers.

