



Simple Engineering Solutions Senior Proposal

Week 2 May18-May24



Goals for the week

- Develop 3 leading product ideas
- Begin pricing parts for projects
- Explore rendering options
 - - Fusion360
 - - Sketchup
 - - AutoCaD



Products to be Researched

- Smart Cooler
- Bookshelf Organizer
- Tunnel Digger



Smart Cooler

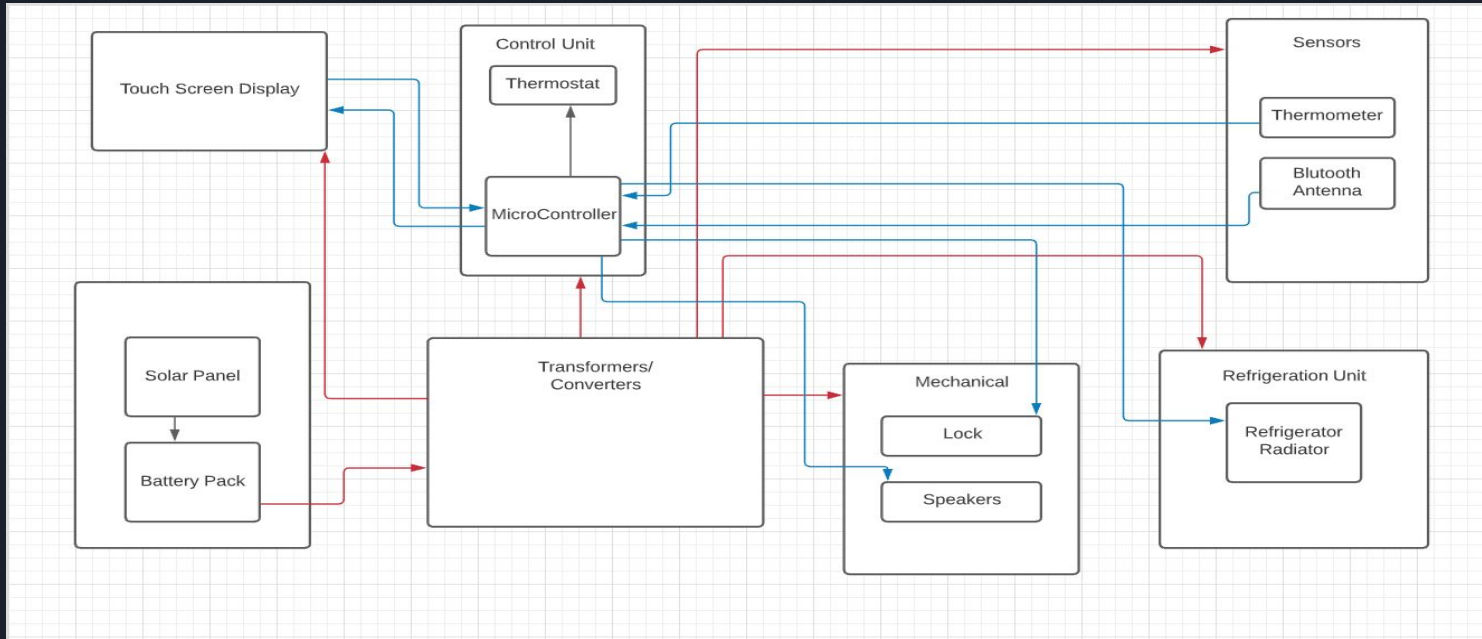
We started looking into the price of the parts and how available they are. When looking up the parts some things became apparent and which directions we should go in if we are given the green light on this project.

There are several other products that are on the market but many of them are in a much higher price range than our proposed \$700 budget or simply offer minimal features.

Also when looking at the parts some design cues became more obvious. Still working out exactly how to implement the locking mechanism. But as far as the Microcontroller is concerned because ideally we are going to have a GUI interface the raspberry pi seems to be the better choice instead of the arduino that we initially considered. Also to make sure that the project meets with the required complexity for the assignment we will be focusing on designing the power supply unit.

Smart Cooler

Rough Sketch up Mock up



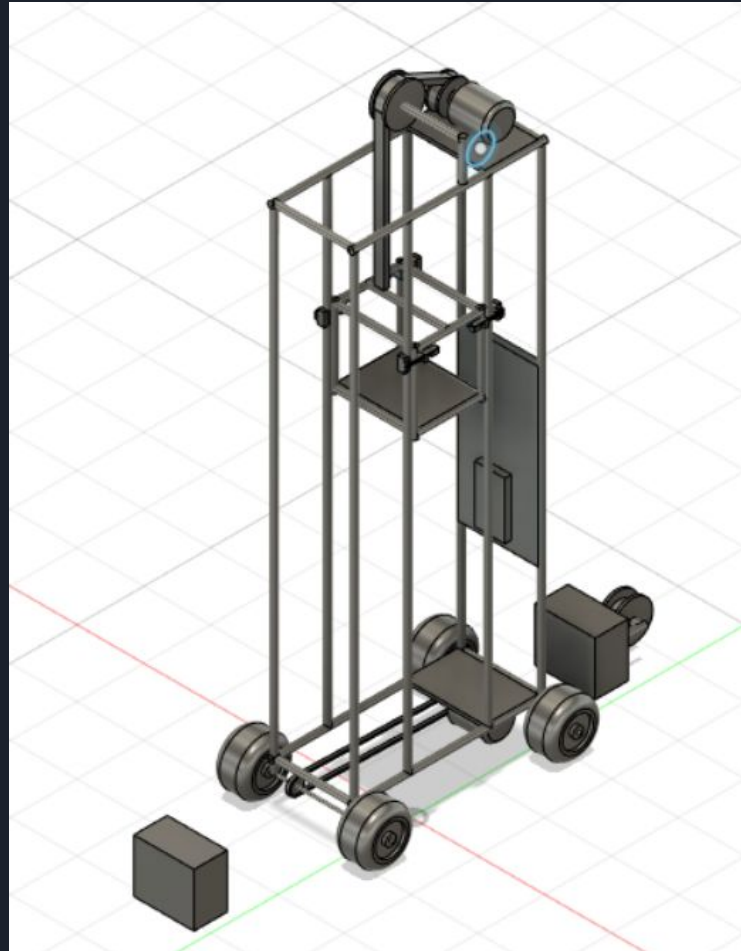
Cooler Budget Estimations

Cooler	Coleman 70qt	48	
Thermostat	Temp Controller Module	9.99	Assume 12V
TouchScreen	Sunfounder 7inch	67.99	
Spearker	Low Profile Marine Speakers	29.99	100W
Regrigeration	Geekcreit DIY	23.75	12V 6A
Battery			
Lock			
MicroController	MCU Discovery	42.99	
	Pi 4	129.98	
Bluetooth		11.89	3.7-5V
Solar Panel	ECO-Worthy	33	12V 10W



BookShelf Organizer

The bookshelf organizer will be a modular system where blocks can be stacked together to make a shelf. Inside the blocks will fit a bin where items can be placed. The system will either be told where to place an item by retrieving the desired bin so an item can be placed and setting it back in the shelf. Items can then be retrieved by asking for said item so the system will retrieve the bin that it is in.





BROWSER

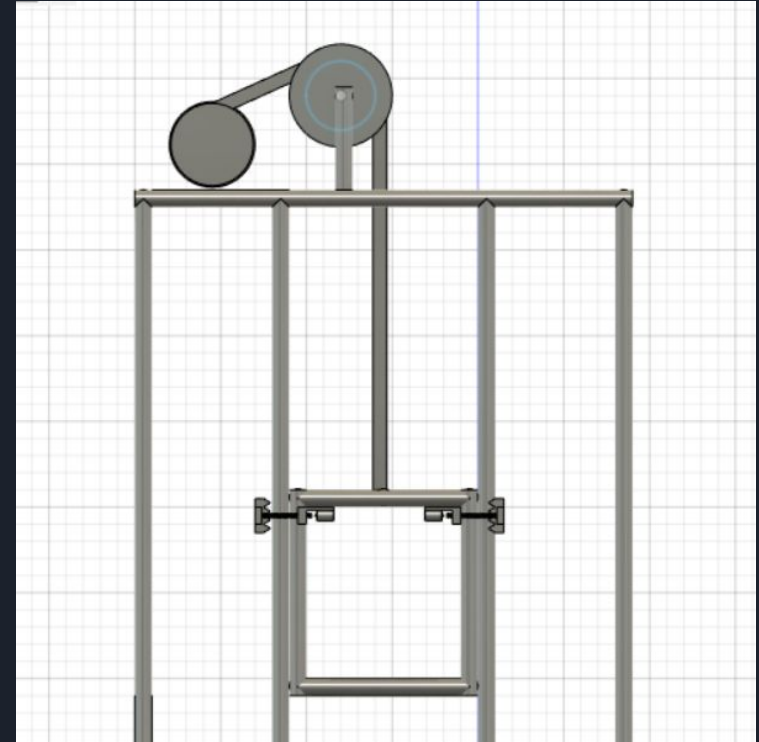
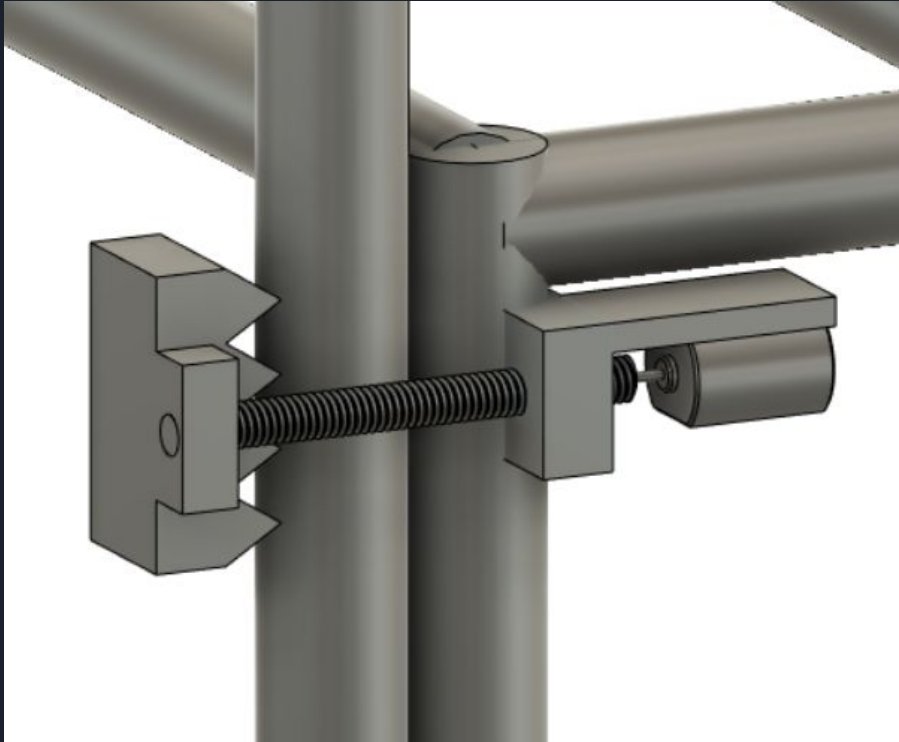
Bookshelf Organizer AssemL...

COMMENTS

Navigation icons: Home, Copy, Paste, Rotate, Zoom, View, Grid, and a 3D view icon.

Detailed description: The image shows a 3D CAD software interface for a 'Bookshelf Organizer Assembly'. The interface is divided into four quadrants by a central grid. The top-left quadrant shows a top-down view of the assembly, which consists of a base with four wheels, a vertical frame, and a shelf. The top-right quadrant shows an isometric view of the same assembly, with red and green axes visible. The bottom-left quadrant shows a front view of the assembly. The bottom-right quadrant shows a side view of the assembly. A 'BROWSER' panel is located at the top left, and a 'COMMENTS' panel is at the bottom left. A navigation toolbar is at the bottom center, and a small 3D view icon is in the top right corner.

Pulley and Braking System



Possible Parts



YaeTek 24V Electric Motor Brushed 250W 2650RPM Chain For E Scooter Drive Speed Control

★★★★★ ~ 89

\$32.88 Prime FREE Delivery
Order it now. Offered by YaeGarden .



Suraielec 12 Gauge Extension Cord Reel, 45 FT Retractable Extension Cord, 12 AWG/3C SJTOW Heavy Duty Power Cord, 15 AMP Circuit Breaker, Lighted Triple Tap, Ceiling or Wall Mount, UL Listed...

★★★★★ ~ 53

\$95.99 ✓prime FREE One-Day



Mean Well LRS-350-24 DC Switching Power Supply, 24V 14.6A 350W

★★★★★ ~ 694

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Size : 1 PACK | Style : LRS-350-24:24V/14.6A
3 Used & New from \$31.50



CasterMaster 3X3 Square Rubber Furniture Caster Cups with Anti-Sliding Floor Grip (Set of 4)

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\$12.95 ✓prime Today 2 PM - 6 PM

Size Name : 3 Inch | Color Name : Dark Brown



Antanker 8-Inch Plastic Wheel Replaces Oregon 72-108 Wheel 8 x 175 Universal Wheel

★★★★★ ~ 57

\$17.99 ✓prime FREE One-Day



BIQU 15A 250V Rocker Switch Power Socket Inlet Module Plug 5A Fuse Switch with 5Pcs 16-14 AWG Wiring 3 Pin IEC320 C14

★★★★★ ~ 366

\$8.99 ✓prime

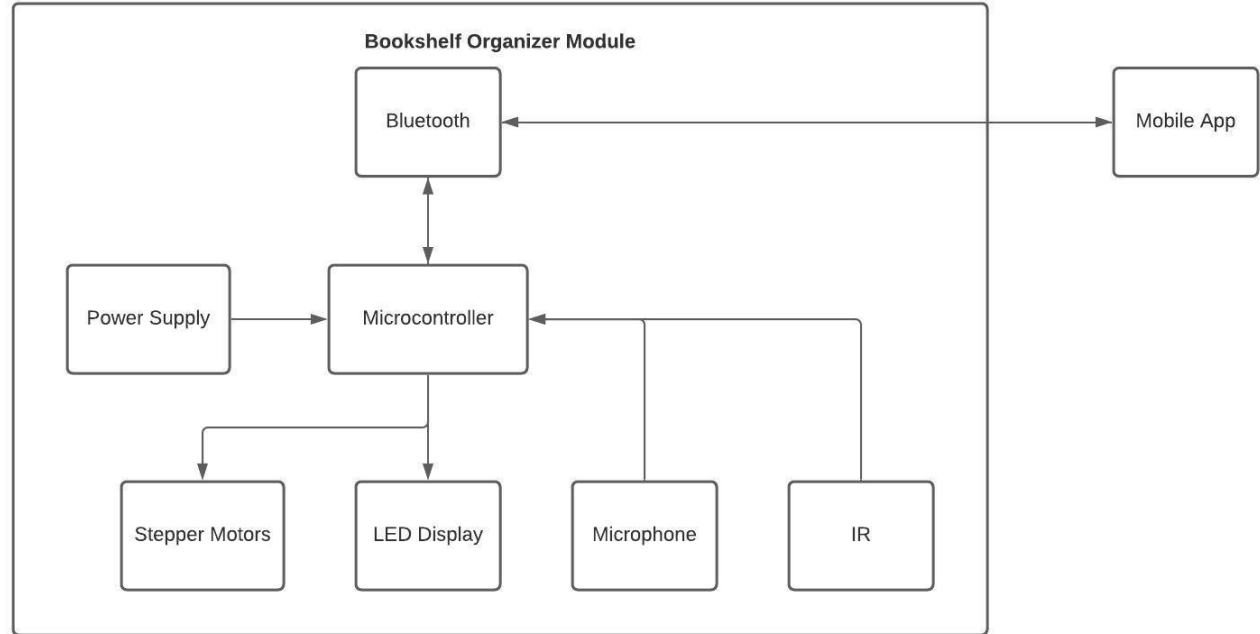
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Style : 1PC



BookShelf Sorter Block Diagram

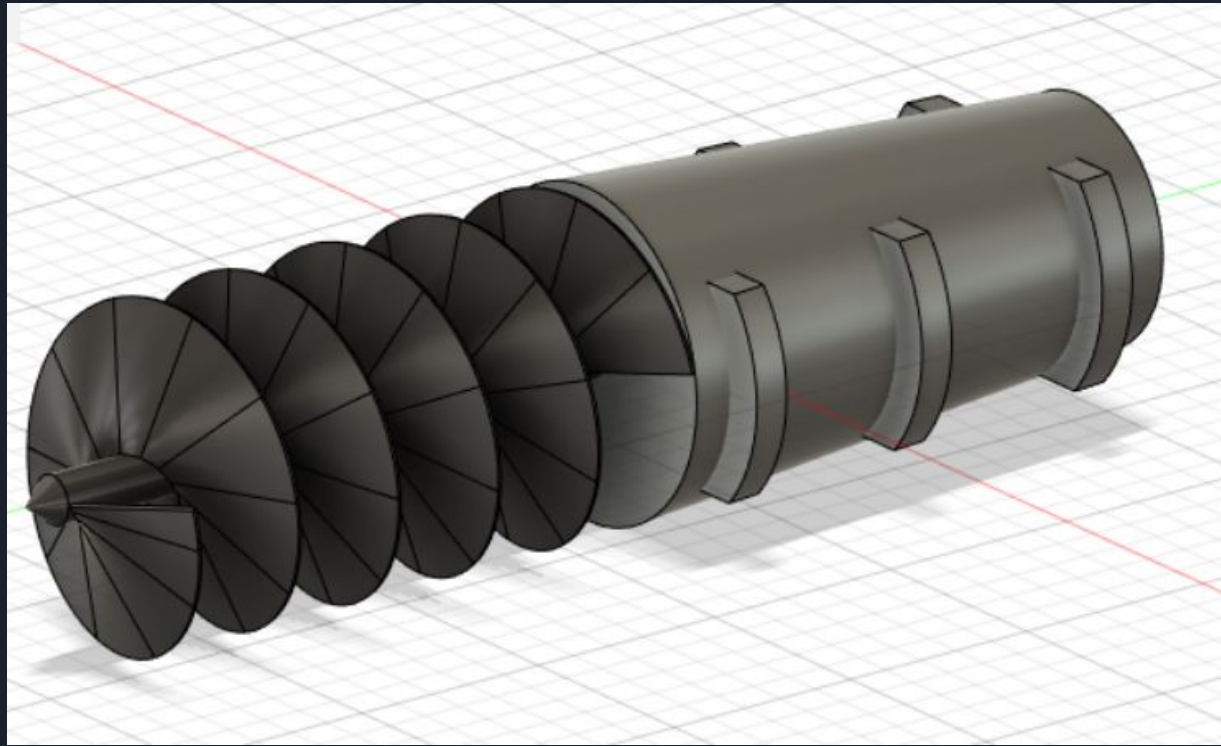
Bookshelf Organizer





Tunnel Digger

While we did look into the Tunneler we leaned more into the other two ideas. There was some cross-over though when we started to consider the application of the motors that were researched with the BookShelf Organizer.



Possible Parts



Auger Drill Bit for Planting 1.6x9in & 3x12in Garden Auger Spiral Drill Bit Rapid Planter for 3/8 Hex Drive Drill - for Tulips, Iris, Bedding Plants and Digging Weeds Roots

★★★★★ ~ 190

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Color : Green

2 Used & New from \$21.99



Belker 12W Multi Voltage 3V 4.5V 5V 6V 7.5V 9V 12V Universal AC DC Power Adapter for Household Electronics - Max Amp 1000mA [BE]

★★★★★ ~ 1,553

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2 Used & New from \$12.75



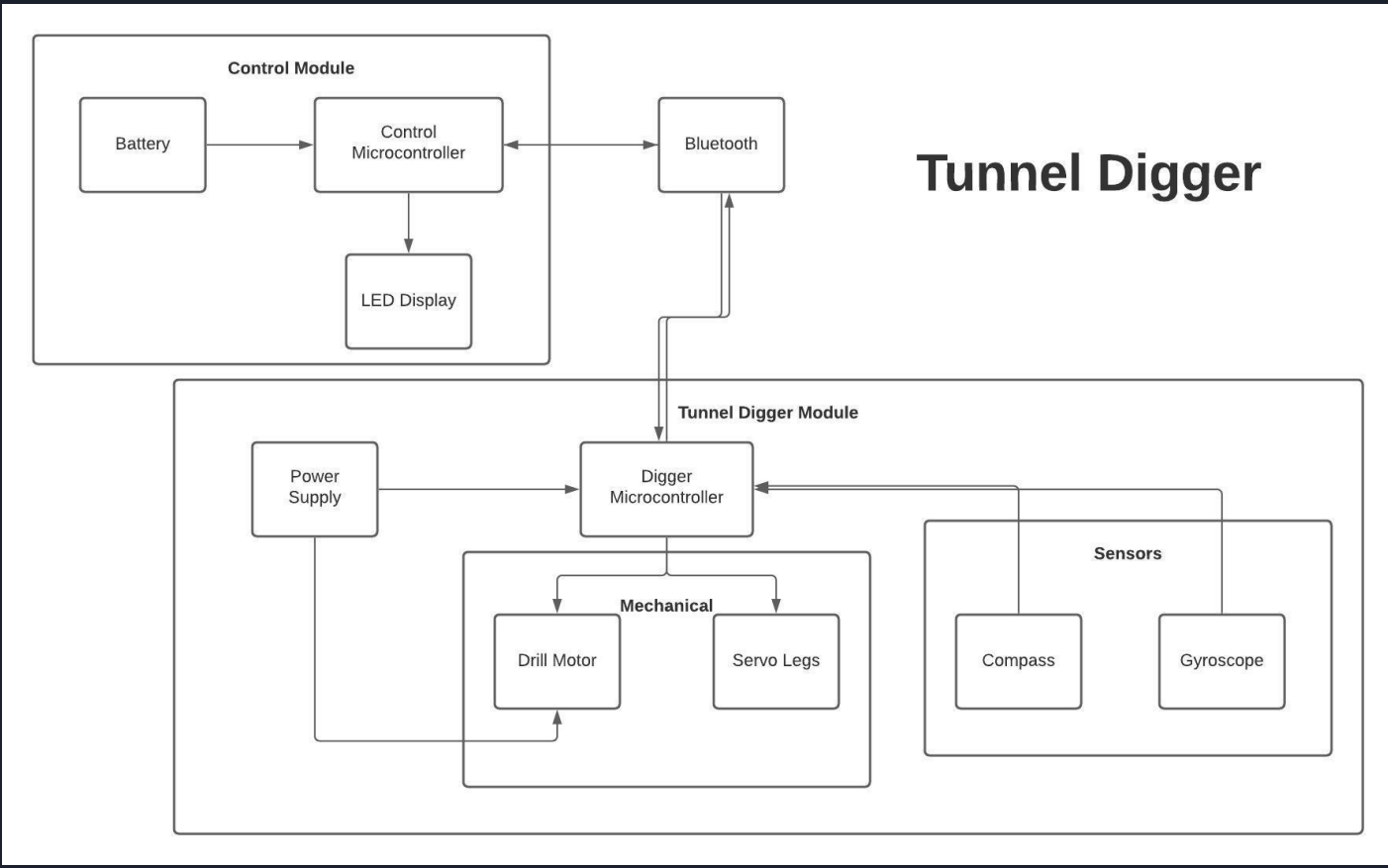
AUTOTOOLHOME Mini DC 12V Electric Hand Drill Motor PCB & Twist Drills Set 1/88-1/6 inch JTO Chuck Jewelry Craft Drill Kit

★★★★★ ~ 206

\$10.99 ✓prime FREE One-Day



Tunnel Digger Block Diagram





Goals for next week

The week was productive and we got some good ideas to work with.

- Finalize the Product that we will going forward with
- Fully shift over to Fusion 360 for the design
- Start to research research paper requirements