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**REC**  
FOUNDATION

# Charging Station

Presentation by 8931F  
V-Bots Firewall

VEX V5





# Make It Real C.A.D. Challenge Introduction

- Challenge to create original idea to benefit one's team, and then proceed to make it
- **Vex Robotics World Championship Qualifying**
- Deadline: December 8th 12:00 PM CST (10:00 AM PST)
- Must use Autodesk Fusion 360, Inventor, and/or Tinkercad
- *Prize is \$400 gift card to the VEX store*

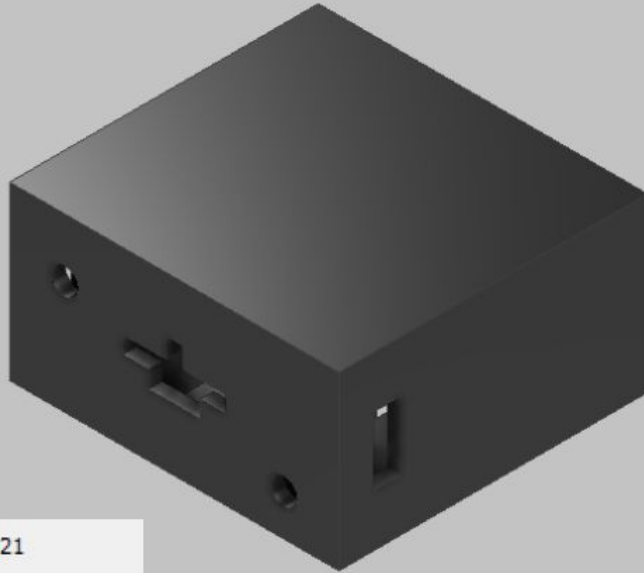


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# Design 1

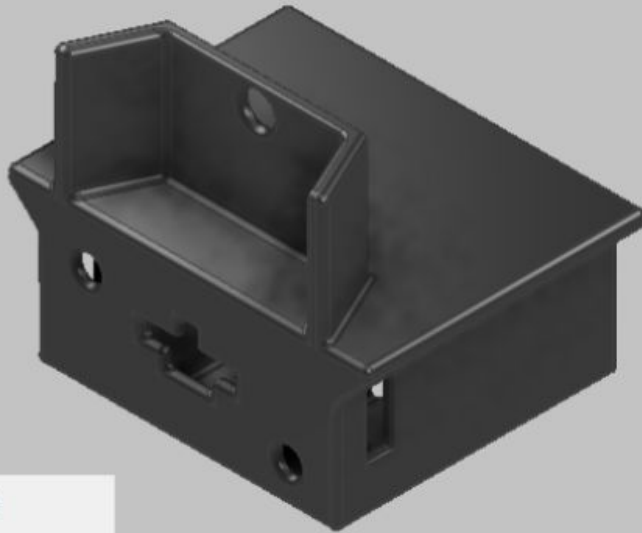
Render #1 - CORNER VIEW



- Dual battery charging spots
- Controller placed on top
- Slots for proper alignment of cords
- Battery LED display

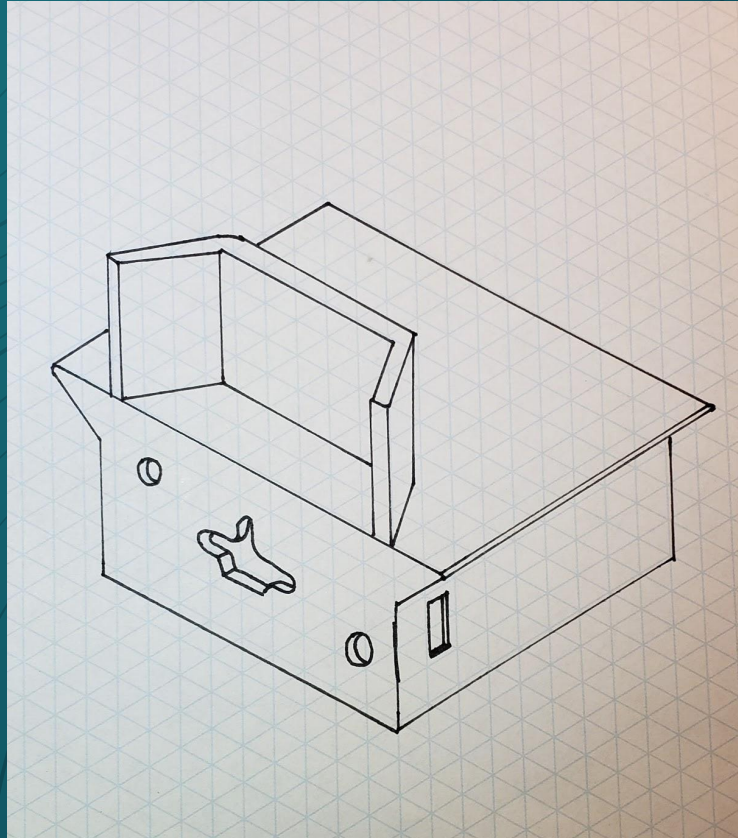
# Design 2 [Final]

Render #1 - Top Right Corner View



- Dual battery charging spots
- Controller placed against support wall
- Slots for proper alignment of cords
- Battery charger can be stored in slots when not used
- Battery LED display

# Sketch



# Other Views

Render #2 - Front View



- Shows charging port holes (wide for easy use)
- Center slot: cord alignment



# Custom Version

## Custom Design



- Easy customization (when editing CAD file), can encompass large logos and/or lettering
- Second location could be under support wall

# Full Display (including accessories)

Full Display with  
Batteries and Controller  
Corner View



- Shows scale of design
- Displays how compact the design is
- Dual battery charging spots
- Controller placed against support wall
- Slots for proper alignment of cords
- Battery charger can be stored in slots when not used
- Battery LED display



# Full Display Cont

Full Display with  
Batteries and Controller  
Front View



- Shows charging port holes (wide for easy use)
- Center slot: cord alignment

# Full Display Cont

Full Display with  
Batteries and Controller  
Top View



- Shows controller fitting on support wall
- Possible second location for personalization under support wall

# Full Display Cont

## Full Display with Batteries and Controller Back View



- Shows wire management area
- Shows battery placement
- Displays grabbing area for the controller
- Center slot for wire management
- Battery charge ports at different heights for proper LED orientation

# Full Display Cont

Full Display with  
Batteries and Controller  
Right View



- Shows LED display
- Shows side grabbing space for controller (identical to other side)

# Physical Data

General Summary Project Status Custom Save Physical

Solids  
The Part Update

Material  
PC/ABS Plastic Clipboard

Density  
0.357 g/cm<sup>3</sup>

Requested Accuracy  
Medium

General Properties

		Center of Gravity
Mass	0.278 lbmass (Relative)	X 2.400 in (Relative E)
Area	169.782 in <sup>2</sup> (Relative)	Y 1.781 in (Relative E)
Volume	21.544 in <sup>3</sup> (Relative)	Z -1.785 in (Relative)

Inertial Properties

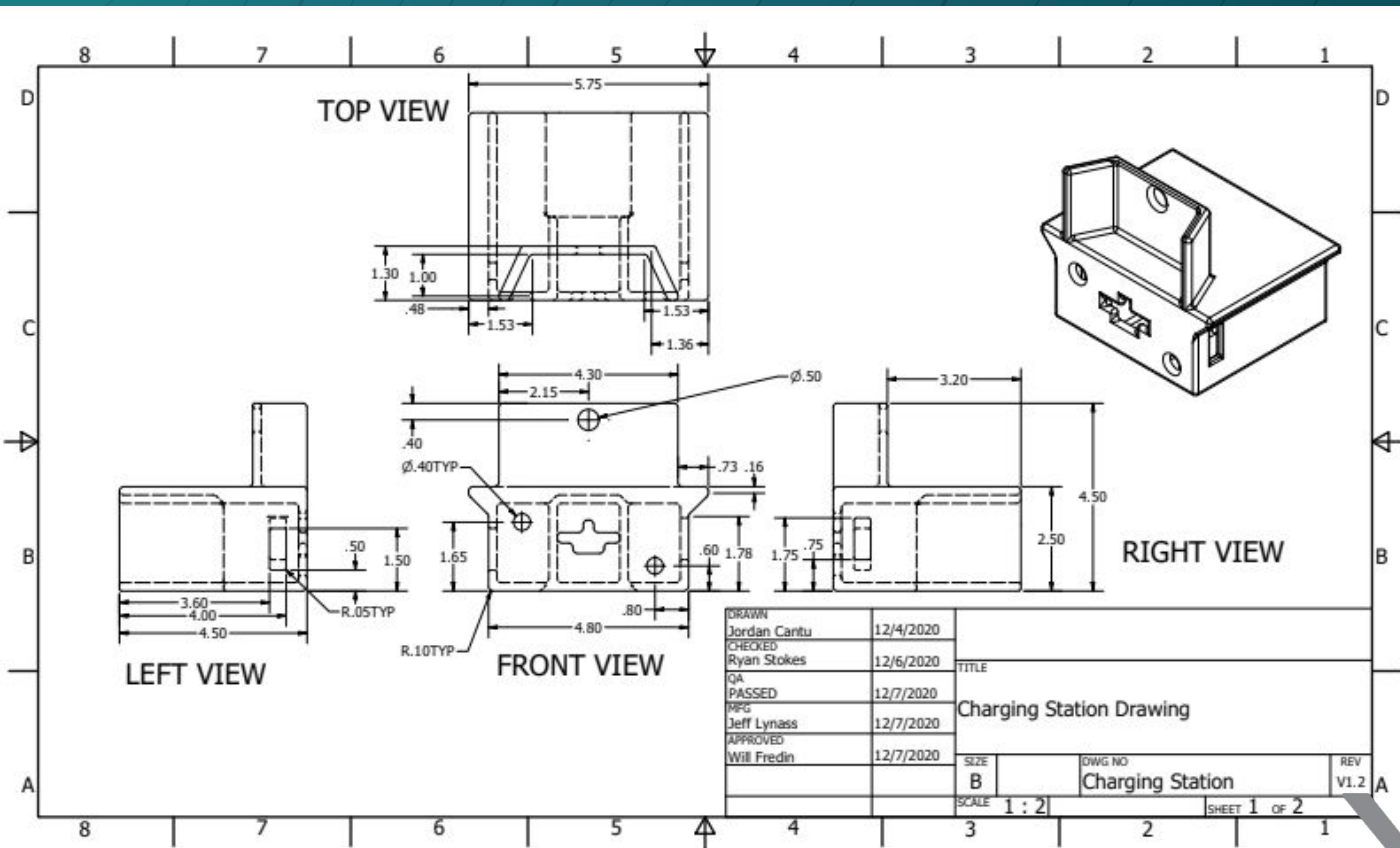
Principal Global Center of Gravity

Mass Moments

Ixx	0.789 lbmass in	Calculated using negative integral.	
Ixy	-0.000 lbmass in	Iyy	1.284 lbmass in
Ixz	0.000 lbmass in	Iyz	-0.021 lbmass in
		Izz	1.124 lbmass in

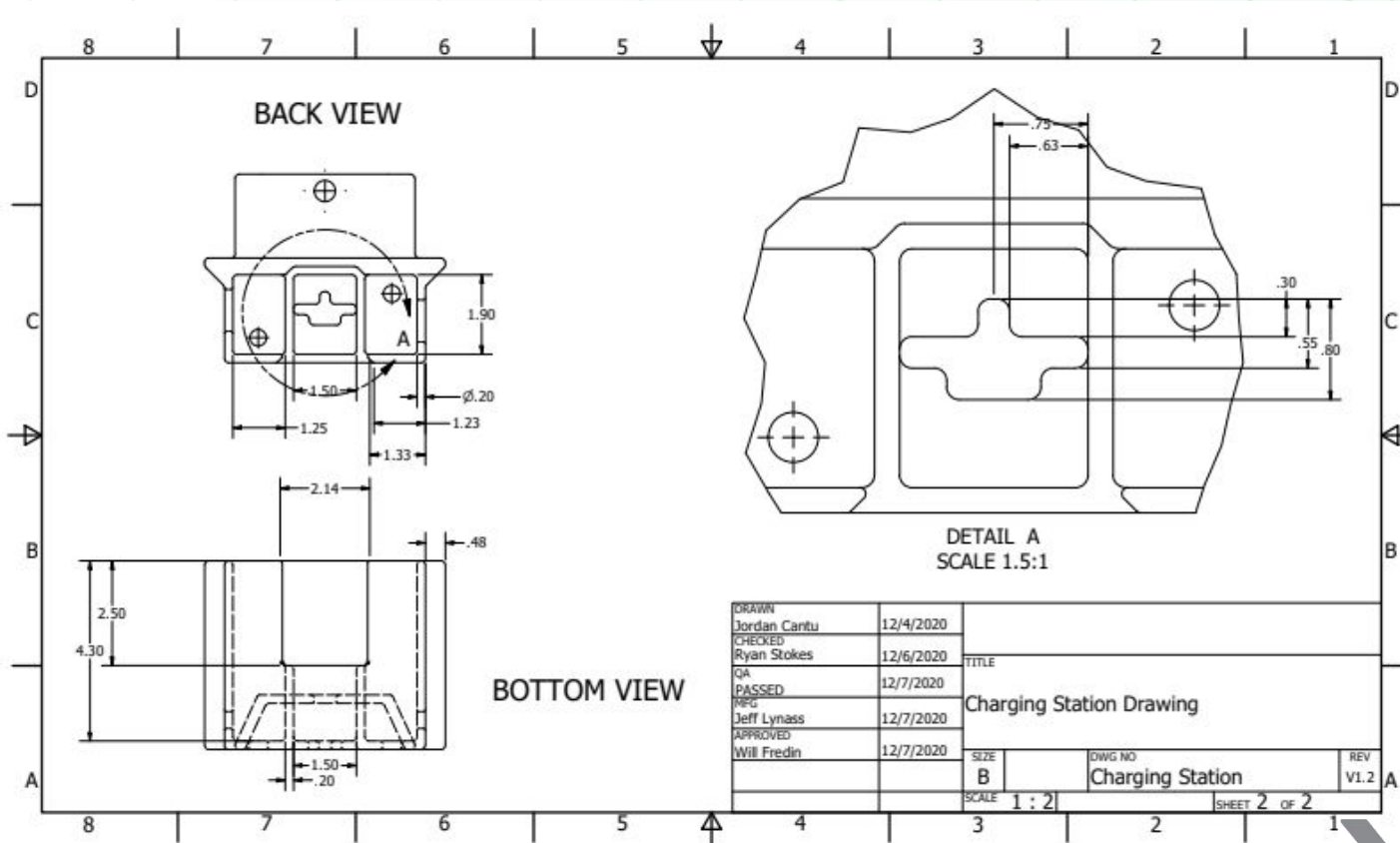
- This window shows the iProperties of the Charging Station. Mass, Area, Volume, and other technical data is shown.

# Technical Sketch





# Dimensions CONT



DRAWN	12/4/2020		
Jordan Cantu			
CHECKED	12/6/2020	TITLE	
Ryan Stokes		Charging Station Drawing	
QA	12/7/2020		
PASSED			
MEG	12/7/2020		
Jeff Lynass			
APPROVED	12/7/2020		
Will Fredin			
		SIZE	DWG NO
		B	Charging Station
		SCALE	REV
		1 : 2	V1.2
		SHEET 2 OF 2	

# Printed Views

## Charging Setup



- Full charging setup in real life
- NOTE: clean wires coming out of the back of the station
- Chose not to personalize
- Fillets on corners turned out well

# Printed Views

## Charging Setup CONT



- Shows cable management of batteries and controller
- Cord alignment works perfectly
- Design orientation for charging station
- All charging holes are filleted and turned out great



# Printed Views

## Charging Setup CONT



- LED display lines up perfectly (button included)
- Shows room for hand for grabbing
- No melted plastic on the charging station

# Printed Views

## Charging Setup CONT



- Shows inner wire management of batteries and controller
- Batteries slide in very well
- Lighted view shows interior battery slots and cable management area

# Printed Views

## Charging Setup CONT

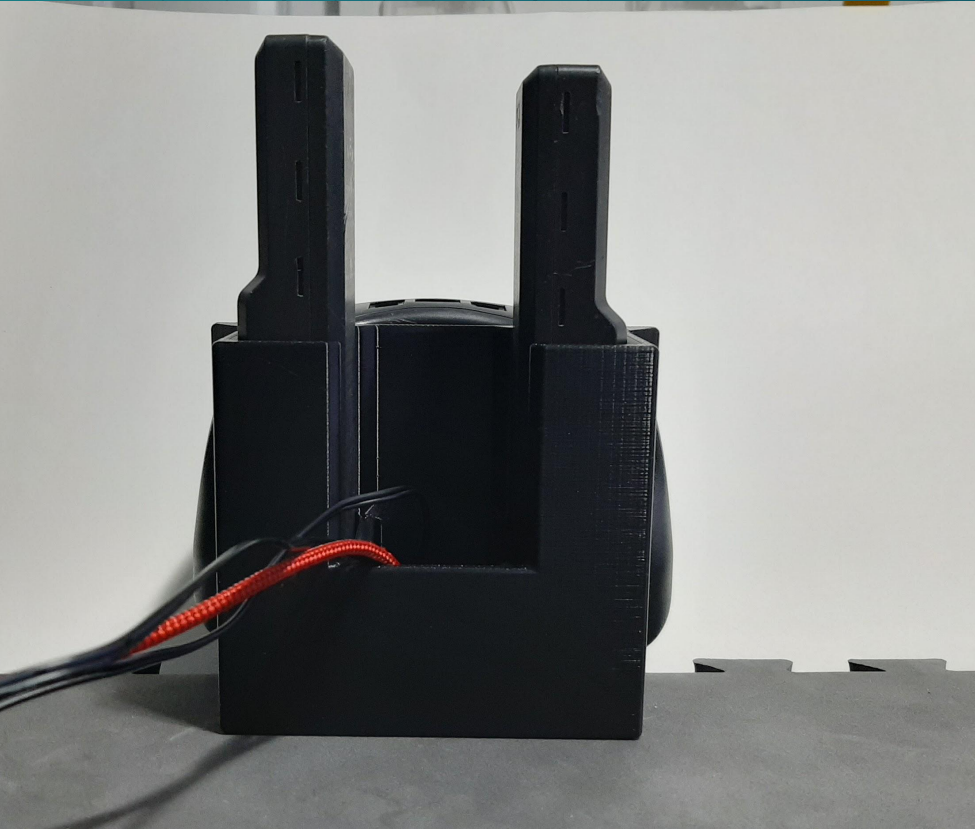


- Shows room for personalized logo
- Shows control resting on platform and support wall



# Printed Views

## Charging Setup CONT



- Shows result of hand slot for cable management
- Note: batteries are pushed up as not to damage charging cord (**this is not the designed orientation of the charging station**)
- Depicts slot for cable management
- Smooth surface

# Printed Views

## Charging Setup CONT



- Shows LED display and button for charging very well



# Thank you for your consideration and time

This presentation was done by 8931F V-Bots Firewall