

# Portable Carrier A

## TEAM C5:

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ME476c-008

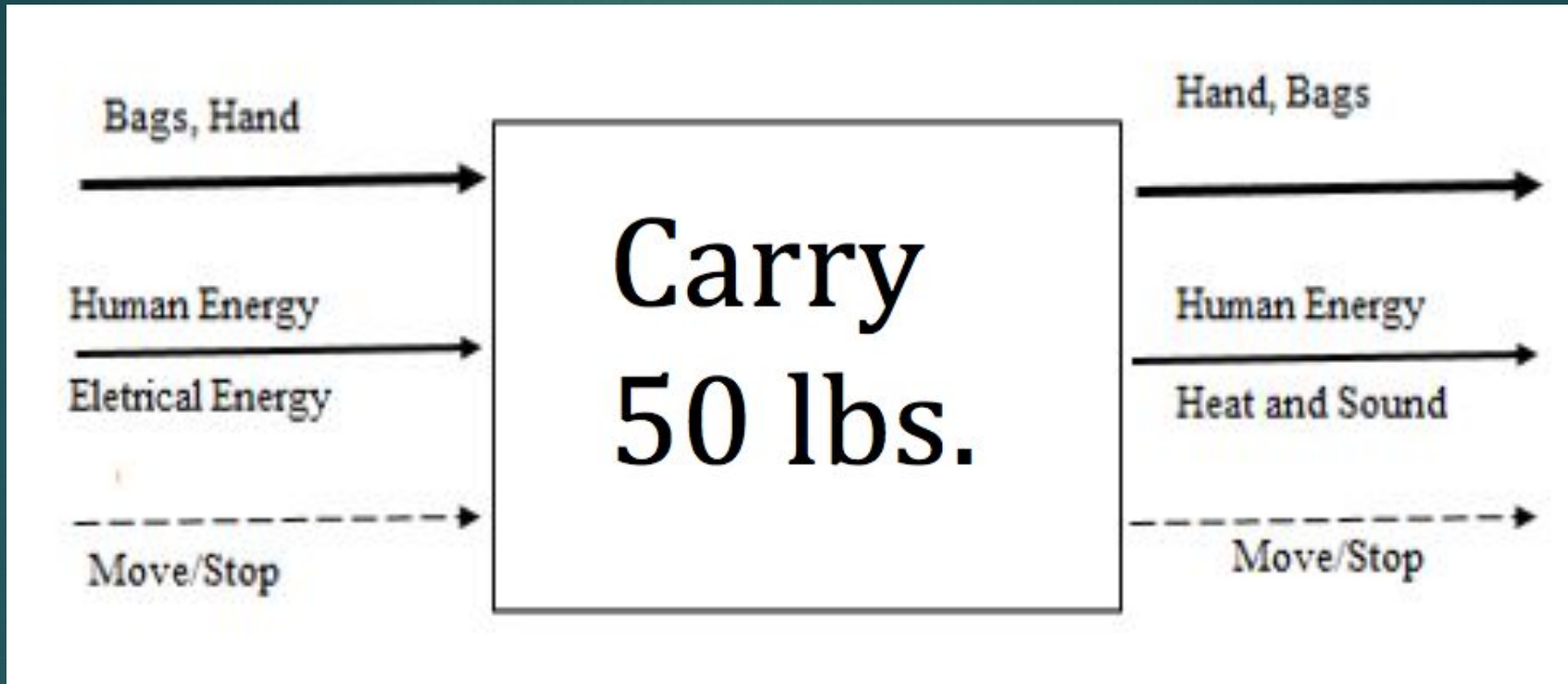
Class Instructor: Dr. David  
Trevas

10/23/2018

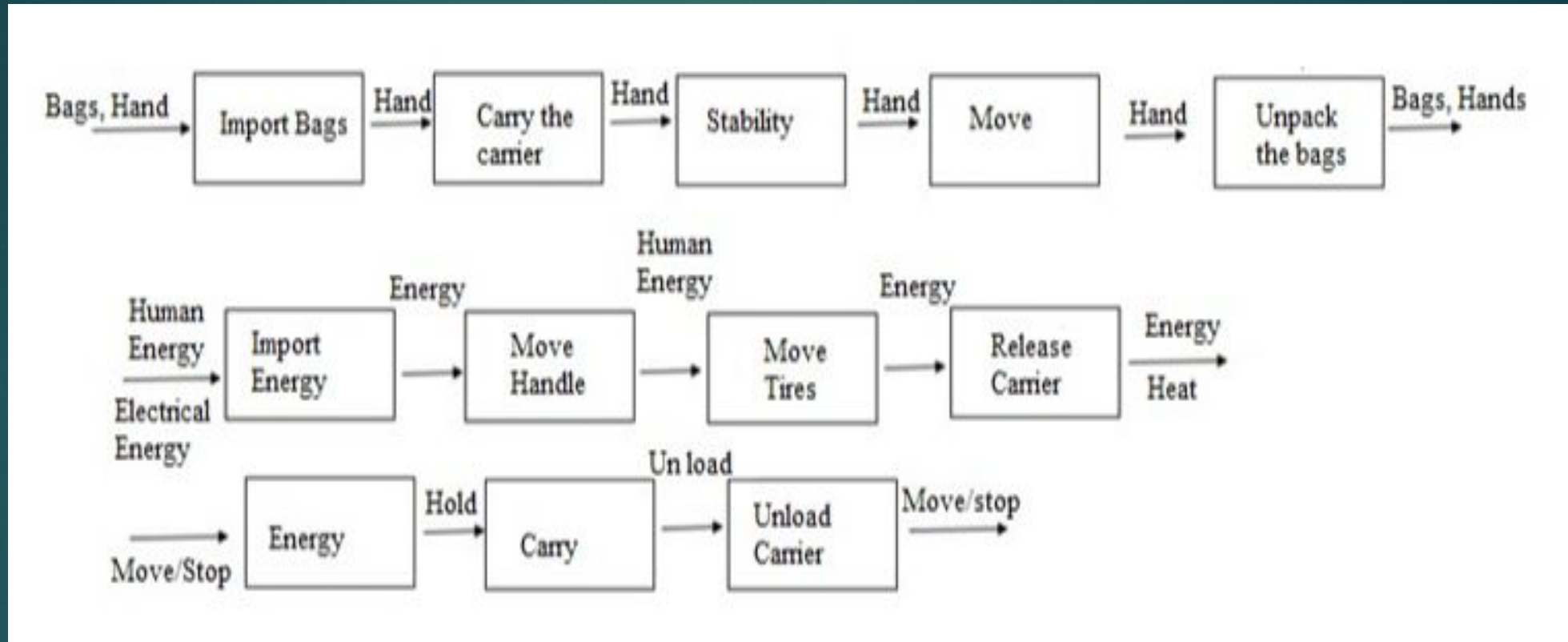
# Project Description

- ▶ What is our project about ?
  - A device to carry 50 lbs from car to Apartment or trash from apartment to disposal.
- ▶ Who is our sponsor ?
  - Dr. Hesam Moghaddam**
- ▶ Why is this product important ?
  - Learn concepts about ME
  - solve a problem

# Black Box



# Functional Model



# Designs Considered

- We did ten design ideas and evaluated them.
- The top three are considered in this presentation:
  - Design 2
  - Design 5
  - Design 10

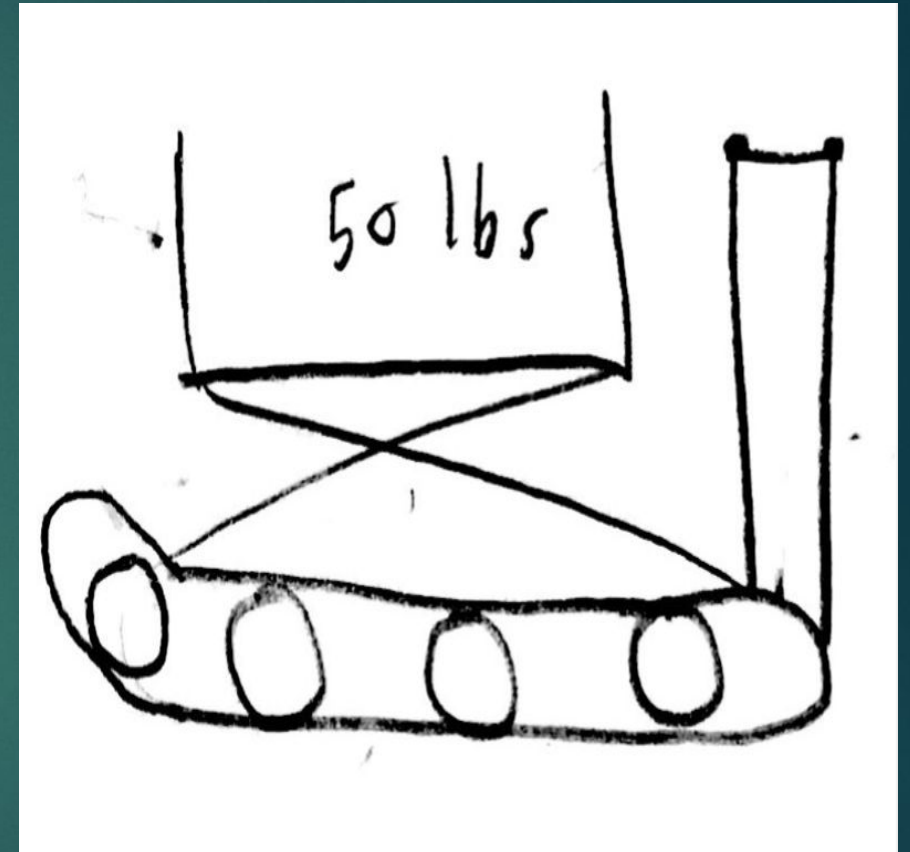
# Design Considered - Design 10

## Advantages:

- Good mobility in rough conditions
- Stable (big base)
- Foldable

## Disadvantages:

- Heavy
- Packing



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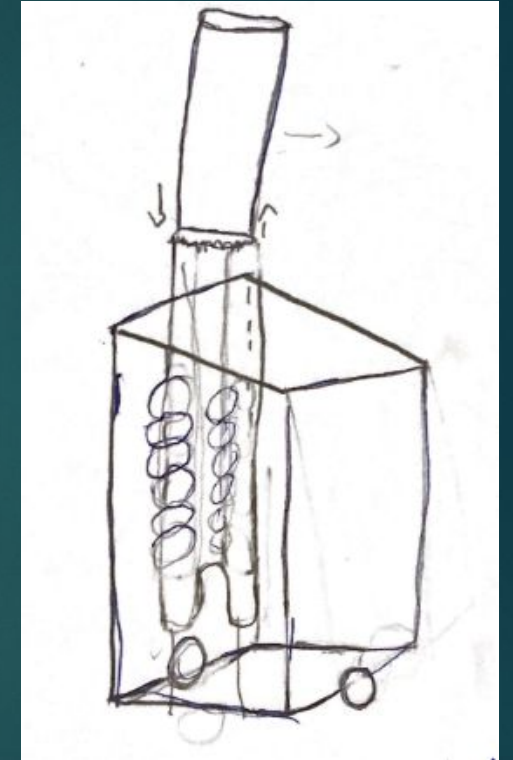
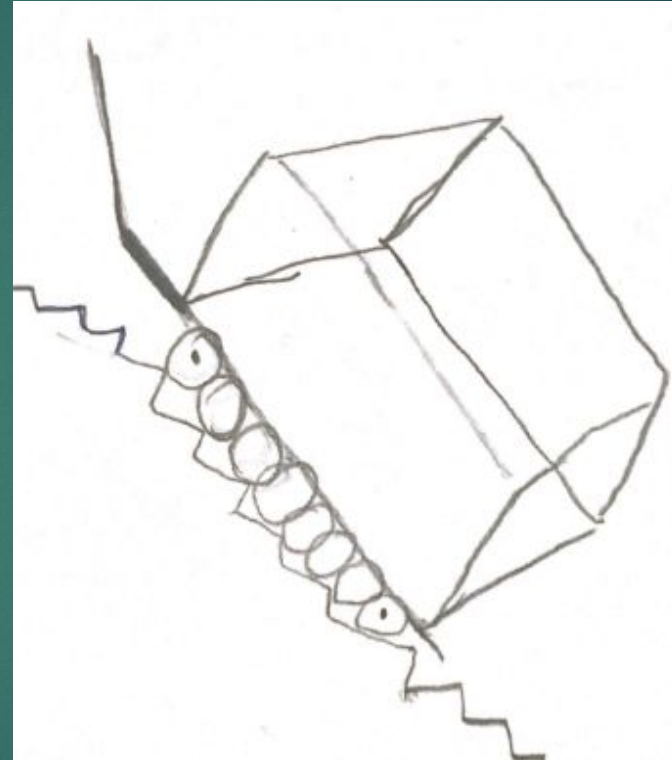
# Design considered - Design 5

## Advantages:

- High Capacity
- Easy to maintain

## Disadvantages:

- May not be very stable
- Extreme weather conditions
- Many tires
- Not foldable



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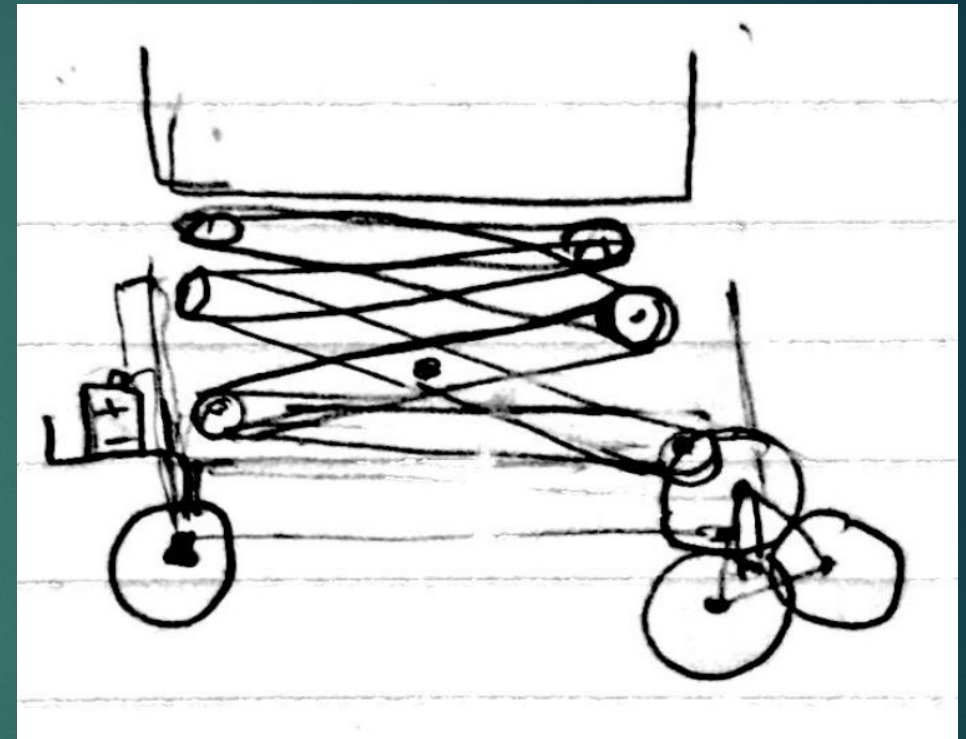
# Design Considered - Design 2

Advantages:

- Climbing stairs
- Weather conditions
- Kitchen table
- Foldable

Disadvantages:

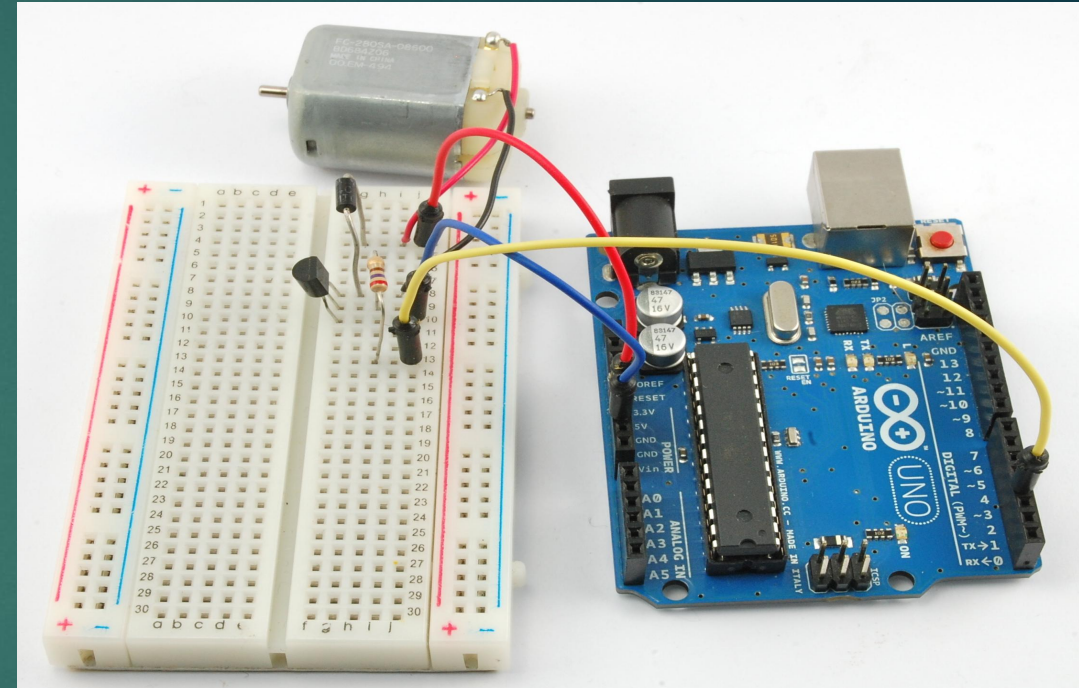
- Many tires
- Stability





# Design considered - Motor

- Motor and a joystick used in each design:
  - For movement on the ground
  - For movement up the stairs
  - For getting out of the trunk



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# Design Considered - Trunk



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# Customers Requirements

- Safety
- Hold 50lbs
- Easy to use
- Lightweight (10-15 lb)
- Climb Stairs (7in v, 11in h)
- Travel (100-500ft)
- Size(w:16",h:36.5",d:20"-28")
- Different Weather
- Portable and Foldable



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# Pugh Chart

10 Designs	Weight	Design # 1	Design # 2	Design # 3	Design # 4	Design # 5	Design # 6	Design # 7	Design # 8	Design # 9	Design # 10
Safe	9	+	+	D	+	-	-	-	+	+	-
Carry 5 bags	8		+		-	+		+	+	+	+
Easy to Use	7	-	+	A	+	+	-		+	-	-
Light Weight	6	+	+		+	+		-	-	-	+
Climb Stairs	5	+	+	T	S	+	+	-	-		+
Travel distance	4	+	+		-	+	-		+	-	+
Small in size	3	-	+	U	+	+	-	-	+		+
Different Weather	2	-	+		-	+	-	-	+	+	+
Portable and Foldable	1	+	+	M	-	+			-		+
<b>Pluses</b>		5	9		4	8	1	2	6	2	7
<b>Minus</b>		3	0		4	1	5	4	3	4	2
<b>Total</b>		2	9		0	7	-4	-2	3	-2	5

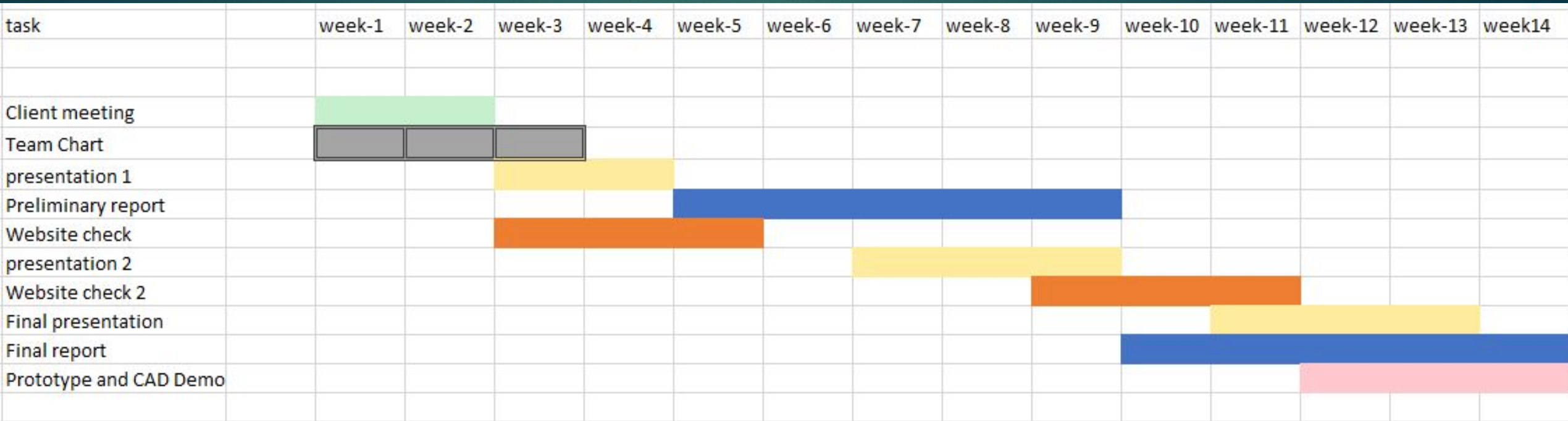
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# Schedule



The team is on schedule

# Budget

<b>Component name</b>	<b>Quantity</b>	<b>Supplier</b>	<b>Cost (\$)</b>
1-Pneumatic cylinder	1	Bimba	100
2-Vavle	1	Automation direct	17
3-Compressor	1	Ningbo Haosheng	60
4-Tires	8	Service caster	2*7.35+6*5.49
5-Triangle	2	Stair cl	2.8
6-Scissor lift	1	Snowmobilestudsales	100
7-Frame	1	Material flow	82
8-Arduino kit	1	Amazon	59.99
9-DC motor	1	Amazon	13.88
10-Battery	1	Batteries plus bulbs	21.99

Resulting balance:\$505.3

# References

[1] <https://i1.wp.com/creditoagil.es/wp-content/uploads/2015/06/BORRARNOS-DEL-ASNEF-300x290.png?resize=300%2C290>

[2]

[https://www.bing.com/images/search?view=detailV2&ccid=L362m%2fGI&id=664A01BB87FACDD7A0B09D479317969015FE8F42&thid=OIP.L362m\\_GlcsEh\\_xwEPOTtSwHaHa&mediaurl=http%3a%2f%2fwww.socialmediaminder.com%2fwp-content%2fuploads%2f2014%2f11%2fask-questions.jpg&exph=1000&expw=1000&q=questions&simid=608019710773104313&selectedIndex=1&ajaxhist=0](https://www.bing.com/images/search?view=detailV2&ccid=L362m%2fGI&id=664A01BB87FACDD7A0B09D479317969015FE8F42&thid=OIP.L362m_GlcsEh_xwEPOTtSwHaHa&mediaurl=http%3a%2f%2fwww.socialmediaminder.com%2fwp-content%2fuploads%2f2014%2f11%2fask-questions.jpg&exph=1000&expw=1000&q=questions&simid=608019710773104313&selectedIndex=1&ajaxhist=0)

[3] <https://learn.adafruit.com/assets/2338>

# Questions?

