Portable Carrier A

TEAM C5:

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ME476c-008
Class Instructor: Dr. David Trevas
11/27/2018

Project Description

- What is our project about ?

  -A device to carry 5 bags from car to Apartment.

- Who is our sponsor ?

  -Dr. Hesam Moghaddam

- Why is this product important ?

  -Learn concepts about ME

  -solve a problem

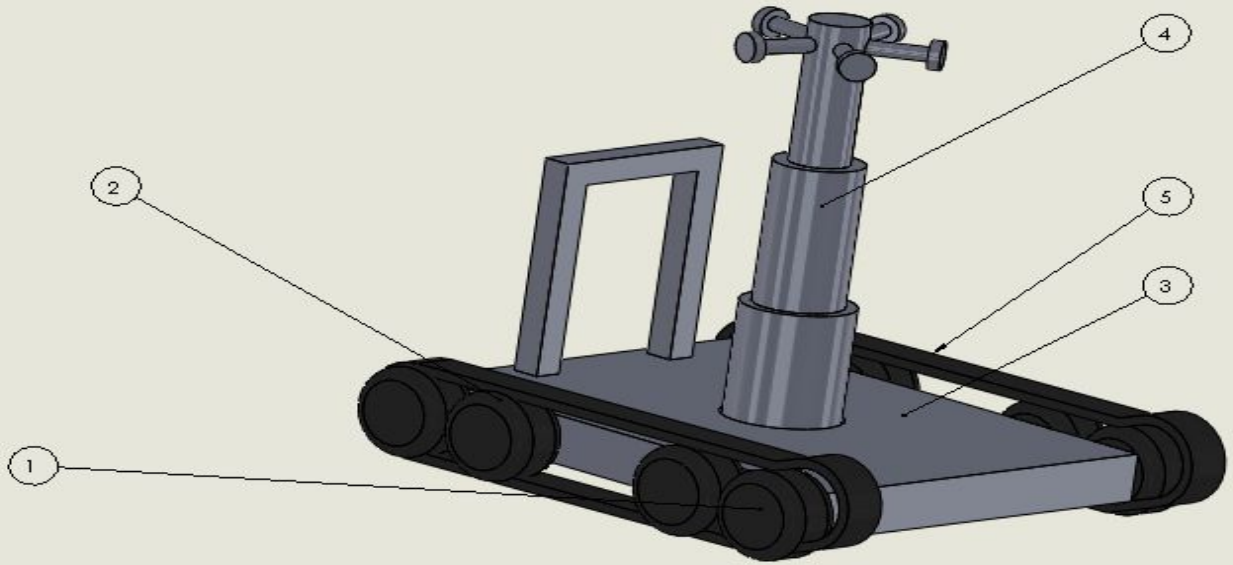
BOM

Bill of Materials								
Team				Portable Carrier A - Team c5				
Part #	Part Name	Qt	Description	Functions	Material	Dimensions	Cost	Link to Cost estimate
1	Cylinder	1	pneumatic cylinder system	uses compressed air	Stainless	1-1/16 inches Bore, 12 inches Stroke, 5/16 inches Rod OD, 1/8" NPT Port	51.08	https://amzn.to/2NG5Qna
2	Tubing	1	pneumatic cylinder system	Air Tubing Pipe Hose Nylon Air Hose For Air Line Tubing	nylon	8mm Od 5mm Id10 Meters	15.95	https://amzn.to/2NJtIWO
3	Tube connectors	1	pneumatic cylinder system	Push In Joint Pneumatic Connector Quick Fittings	Metal, Plas	8mm 1/8	8.99	https://amzn.to/2CfAz8p
4	1/4" female to 1/8" m	1	pneumatic cylinder system	Adapter for connecting pipes	Brass	1/8" x 1/4"	4.98	https://amzn.to/2yluNzc
5	Air compressor intake	1	pneumatic cylinder system	connect system	n/a	1 x 1 x 1 inches	12.87	https://amzn.to/2yluNzc
6	Solenoid	1	pneumatic cylinder system	switch for routing air to any pneumatic device	Aluminum	4.75″ x 2.75″ x 1″	16.75	https://amzn.to/2CidK4a
7	Air compressor	1	pneumatic cylinder system	compressor	Metal	19 x 19 x 18 inches	89.99	https://amzn.to/2CNW2q6
8	Air dispursers	1	pneumatic cylinder system	diffuse air and muffler noise	Brass	5.5 x 2.2 x 0.5 inches	11.99	https://amzn.to/2J1MdW1
9	speed controller	1	pneumatic cylinder system	reduce dynamic noise of the pneumatic components	Brass	2 x 1 x 1 inches	4.8	https://amzn.to/2pTAiRl
10	tires	1	moving subsystem	used to move the whole design	Metal	393mmx206mmx84mm	132	https://ebay.to/2FDNxA6
11	plastic pipes	3	telescoping	used to lift bags	plastic	1.25'' - 1'' - 0.5""	7.44	https://thd.co/2yZ98hL
12	Arduino Kit	1	kit for programming	programming the device	n/a	n/a	49.99	https://bit.ly/2PYyaqC
13	20v battery	1	power source	provide power	plastic	2.3 x 2.8 x 3.1 inches	33.99	https://amzn.to/2Sh4wd6
14	DC motor	1	machine	convert current electrical energy to ME energy	metal	4.2 x 2.9 x 0.5 inches	11.4	https://amzn.to/2TPvGsU
Total Cost Estimate:							452.22	

Salman Alostaz
Portable carrier A
11/27/2018

Designs Description

ITEM NO.	PART NUMBER	QTY.
1	Wheels	8
2	Wheel's Axial	4
3	Frame	1
4	Telescope hanger	1
5	Track	2



Final Design

476 drawing

A3

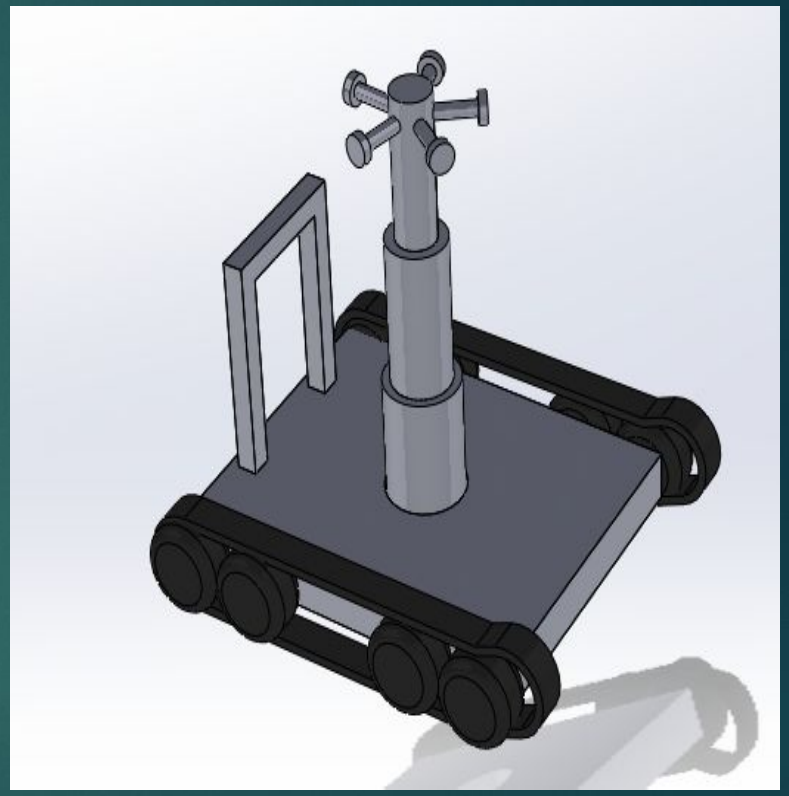
Saleh Alnasim

Portable Carrier

11/27/18

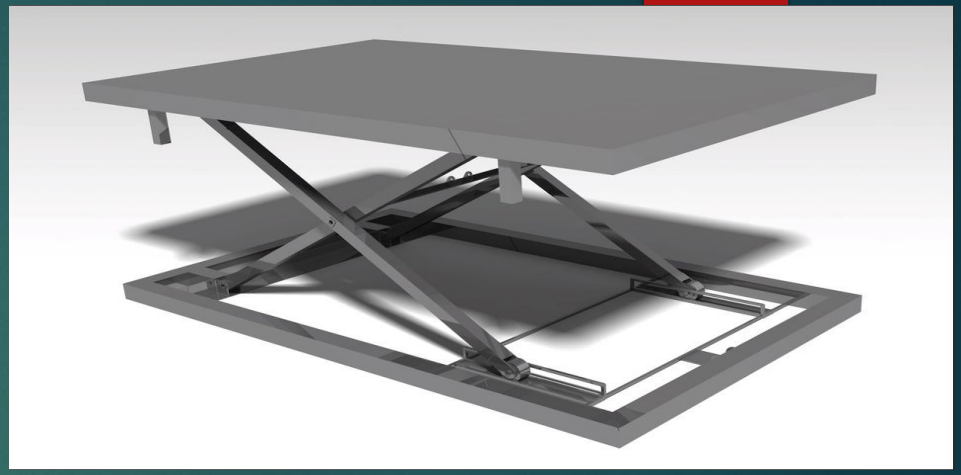
Design description

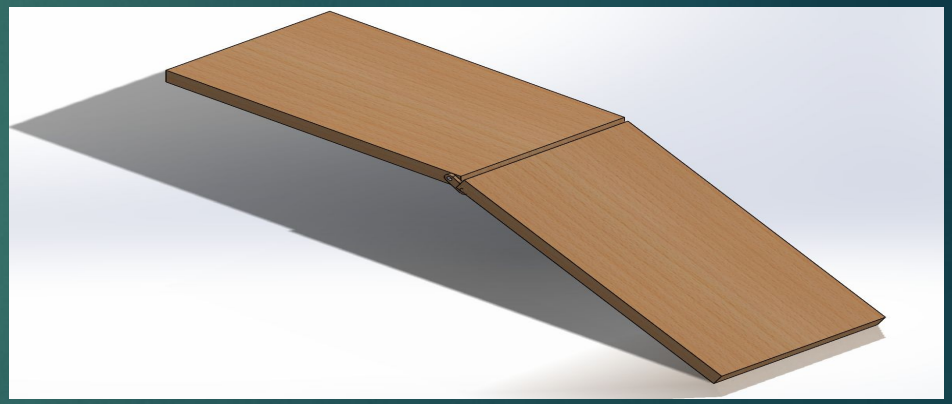
- Handle to guide the direction of the device
- Telescoping hanger (operated by pneumatic cylinder)
- Track is tilted in the front to enable it to climb stairs
- Tracks is control by DC motors on the tires with arduino and a joysticks
- motors with the right power is chosen from analysis to make sure it is powerful enough to move in slippery roads and stairs.



Design Description - Trunk

- Scissor lift is used to get device out of the trunk
- Left inside the trunk
- wooden ramp is used to get the device up and down





Saleh Alnasim

Customers Requirements

- Safety
- Carry 5 bags
- Easy to use
- weight (10-15 lb)
- Climb Stairs (7in v, 11in h)
- Distance (100-500ft)
- Size (w:16”,h:36.5”,d:20”-28”)
- Different Weather
- Portable and Foldable

[1]

Schedule

- Project is on schedule
- Tasks divided the work equally according to each member's skills, availability and responsibility.
- Future Tasks will include: buying parts, doing fabrication and testing, researching analyses and making improvements.

Budget

	Team			
Part #	Part Name	Qt	Cost	Link to Cost estimate
1	Cylinder	1	51.08	https://amzn.to/2NG5Qna
2	Tubing	1	15.95	https://amzn.to/2NJtIWO
3	Tube connectors	1	8.99	https://amzn.to/2CfAz8p
4	1/4" female to 1/8" m	1	4.98	https://amzn.to/2yluNzc
5	Air compressor intake	1	12.87	https://amzn.to/2yluNzc
6	Solenoid	1	16.75	https://amzn.to/2CidK4a
7	Air compressor	1	89.99	https://amzn.to/2CNW2q6
8	Air dispursers	1	11.99	https://amzn.to/2J1MdW1
9	speed controller	1	4.8	https://amzn.to/2pTAiRl
10	tires	1	132	https://ebay.to/2FDNxA6
11	plastic pipes	3	7.44	https://thd.co/2yZ98hL
12	Arduino Kit	1	49.99	https://bit.ly/2PYyaqC
13	20v battery	1	33.99	https://amzn.to/2Sh4wd6
14	DC motor	1	11.4	https://amzn.to/2TPvGsU

Resulting balance:$452.22

Actual expenses:$50

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%2fGl&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?

[2]