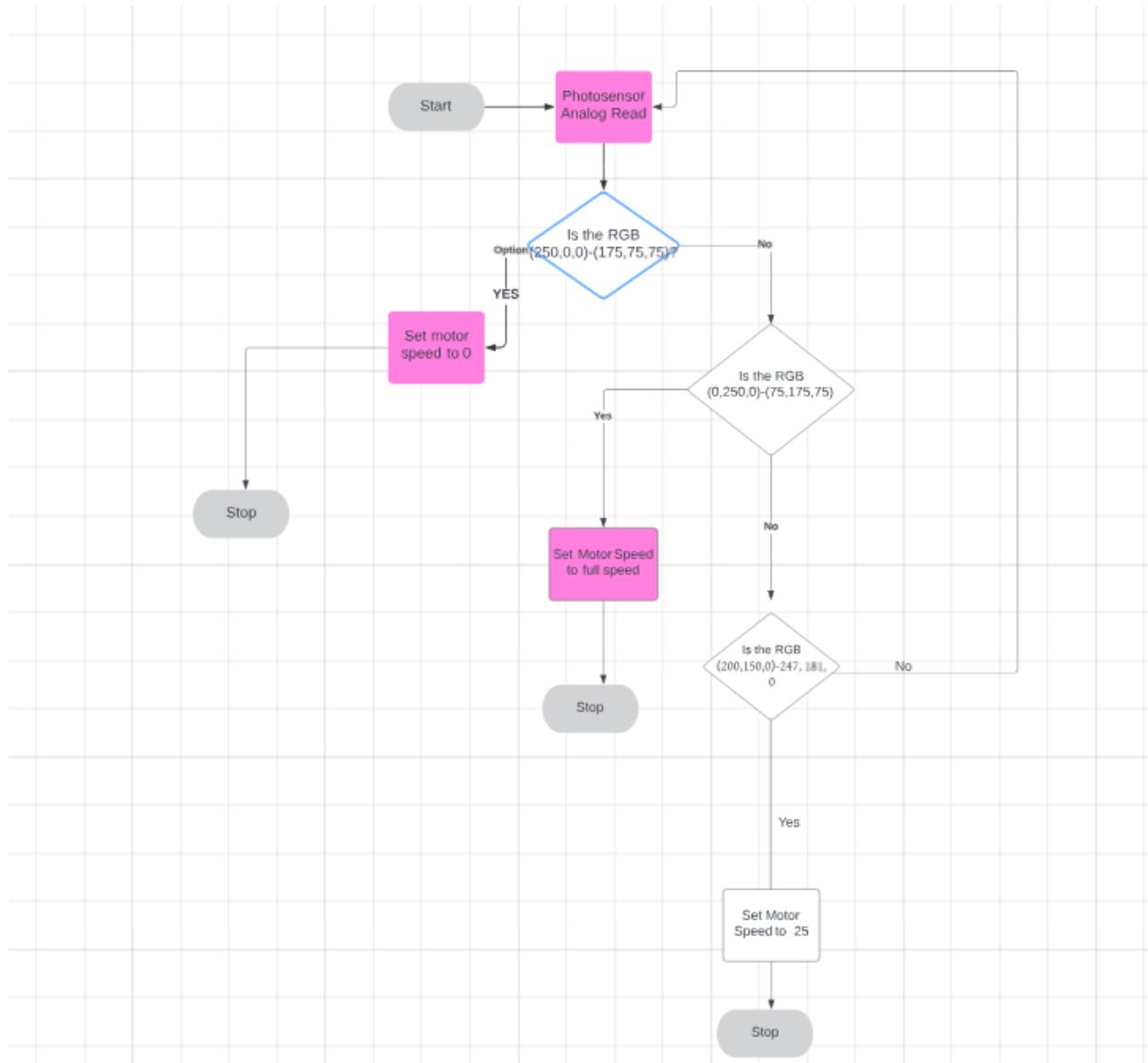
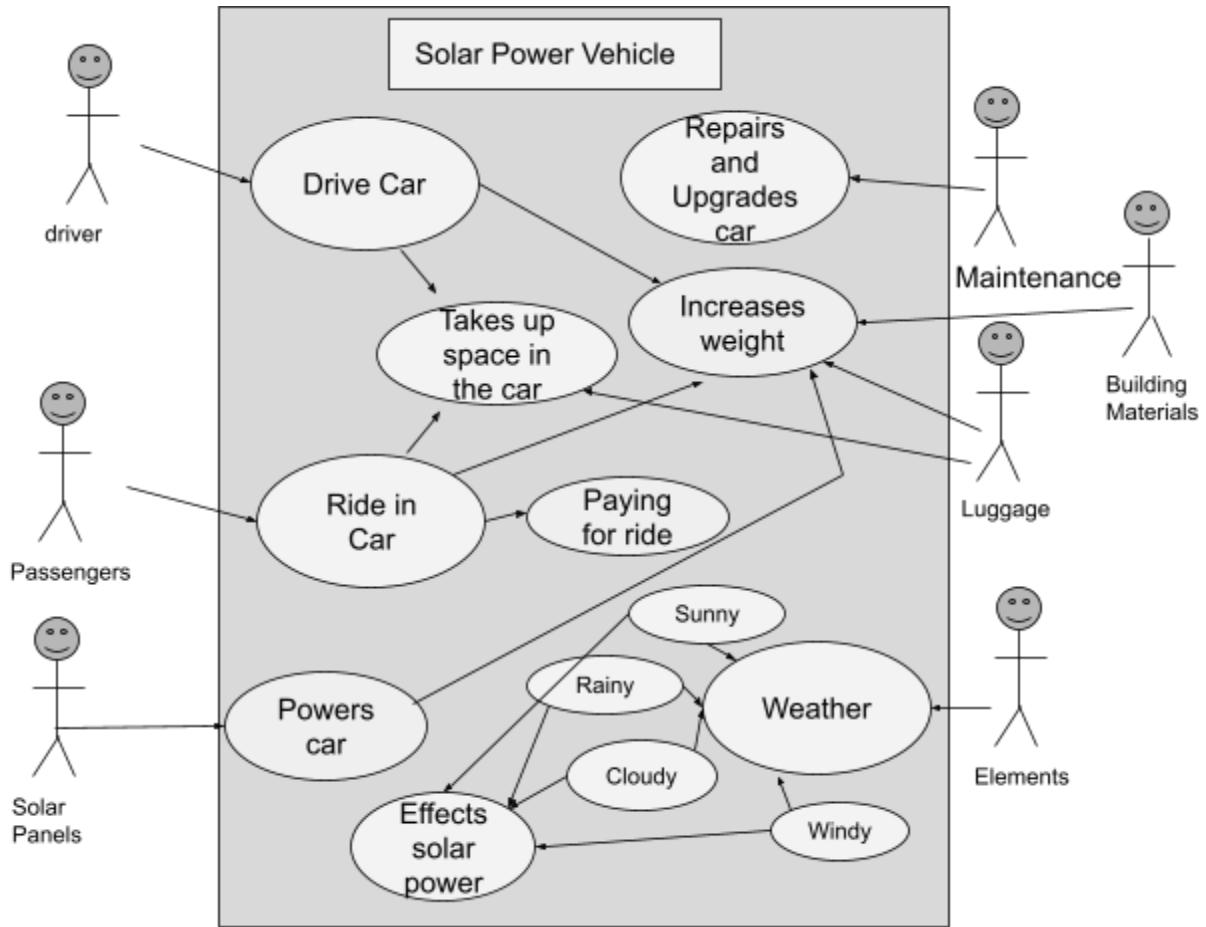


Memo #4 Design and Budget Proposal

Activity Diagram:





Use Case Diagram

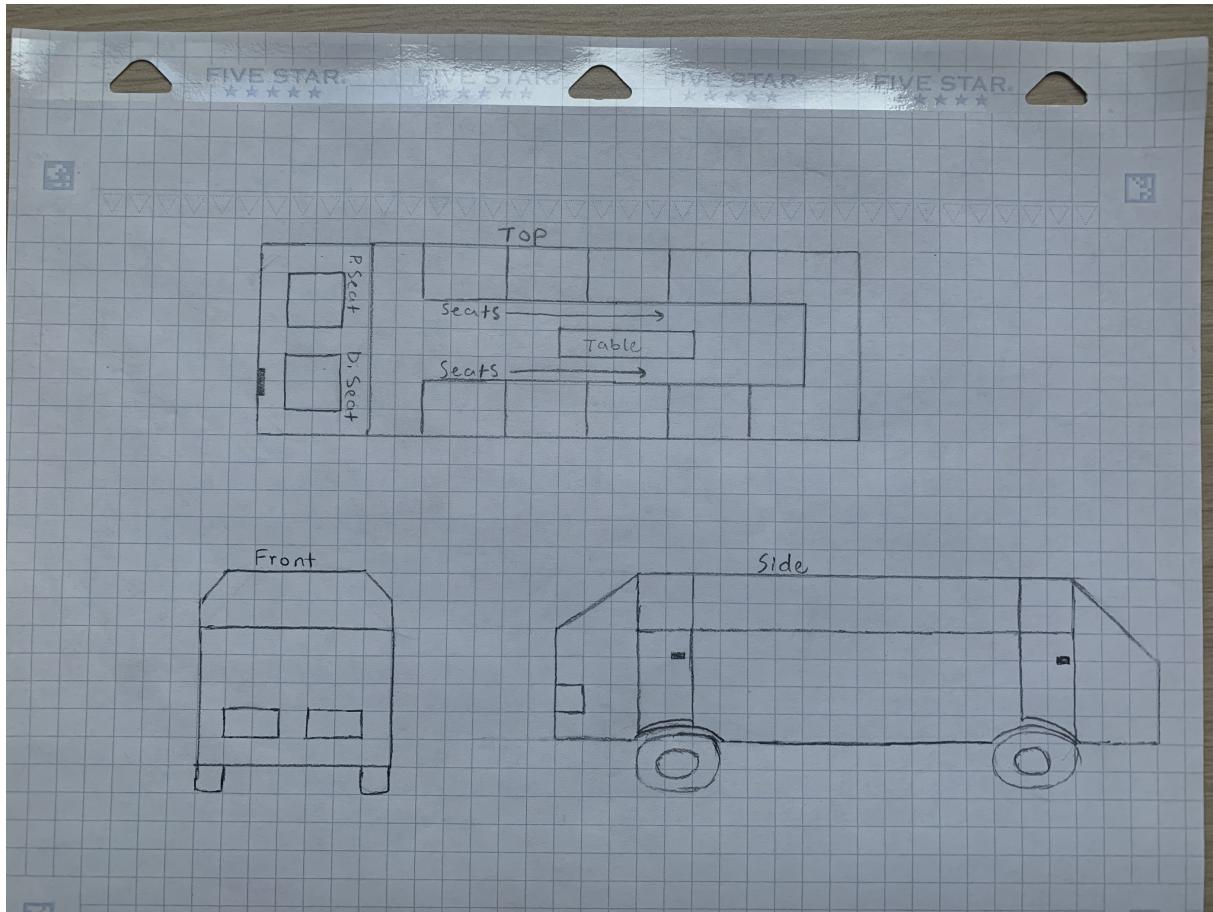
3 designs-

Prototype 1:

Form - Long Limousine

Features - Lots of seats, small wheels, light in weight, small trunk, low to the floor, LED lights inside, table inside.

One pro of this design is that it is long in length which will allow a large number of passengers. Another advantage is that it will be low to the floor which will give it better control. It will also be light in weight which will give it speed. Lastly, the small wheels will allow more torque to happen. The cons are that it will not have much storage space and no wheelchair ramp that will allow wheelchair accessibility.

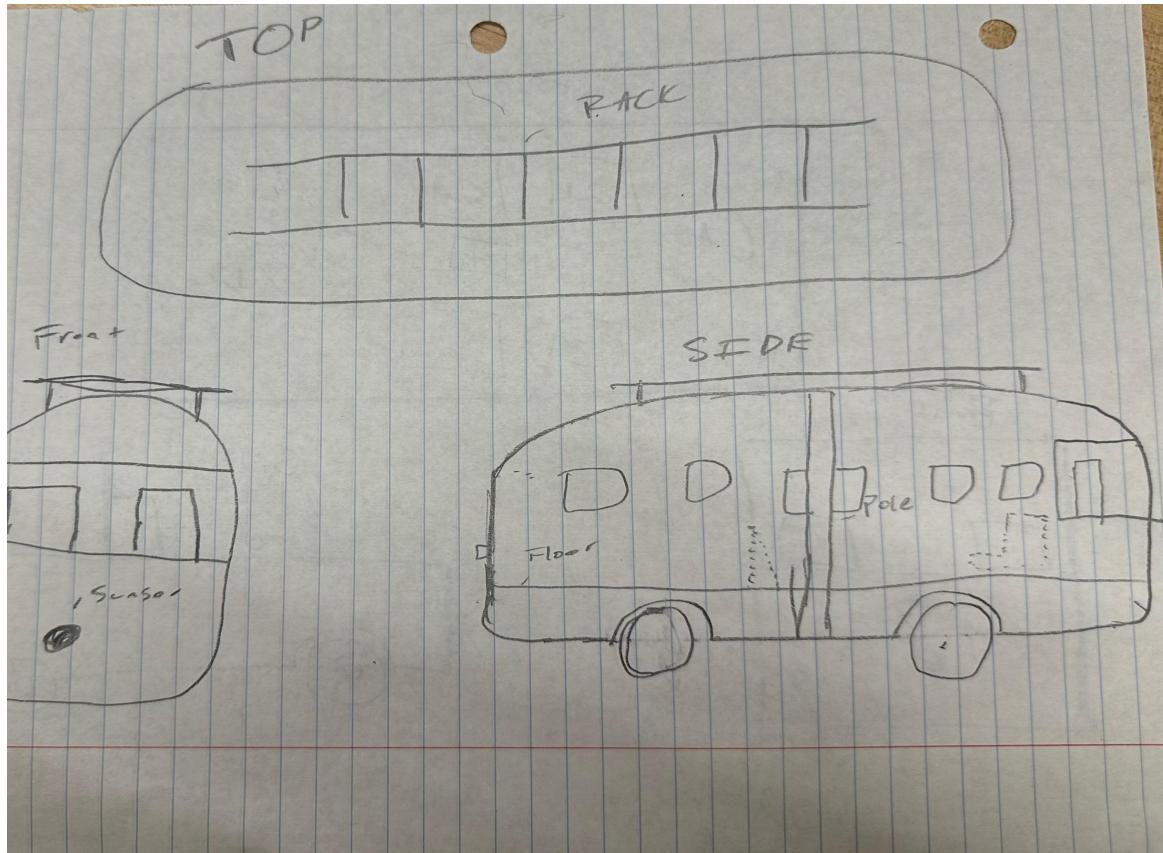


Prototype 2:

Form - VW Bus

Features - Wheelchair ramp, medium-sized trunk, lots of seats, large wheels, sensor

A pro of this design is that it is wheelchair accessible. Another pro is the storage since it is better than the limo storage. Lots of seats as well which is a big advantage. Another pro is the large wheels since it will offer better traction. Lastly, the sensor in the front will be able to detect the traffic light. The cons are it will be on the slow side, will be heavy in weight, and will have not much control since it will be high off the floor.

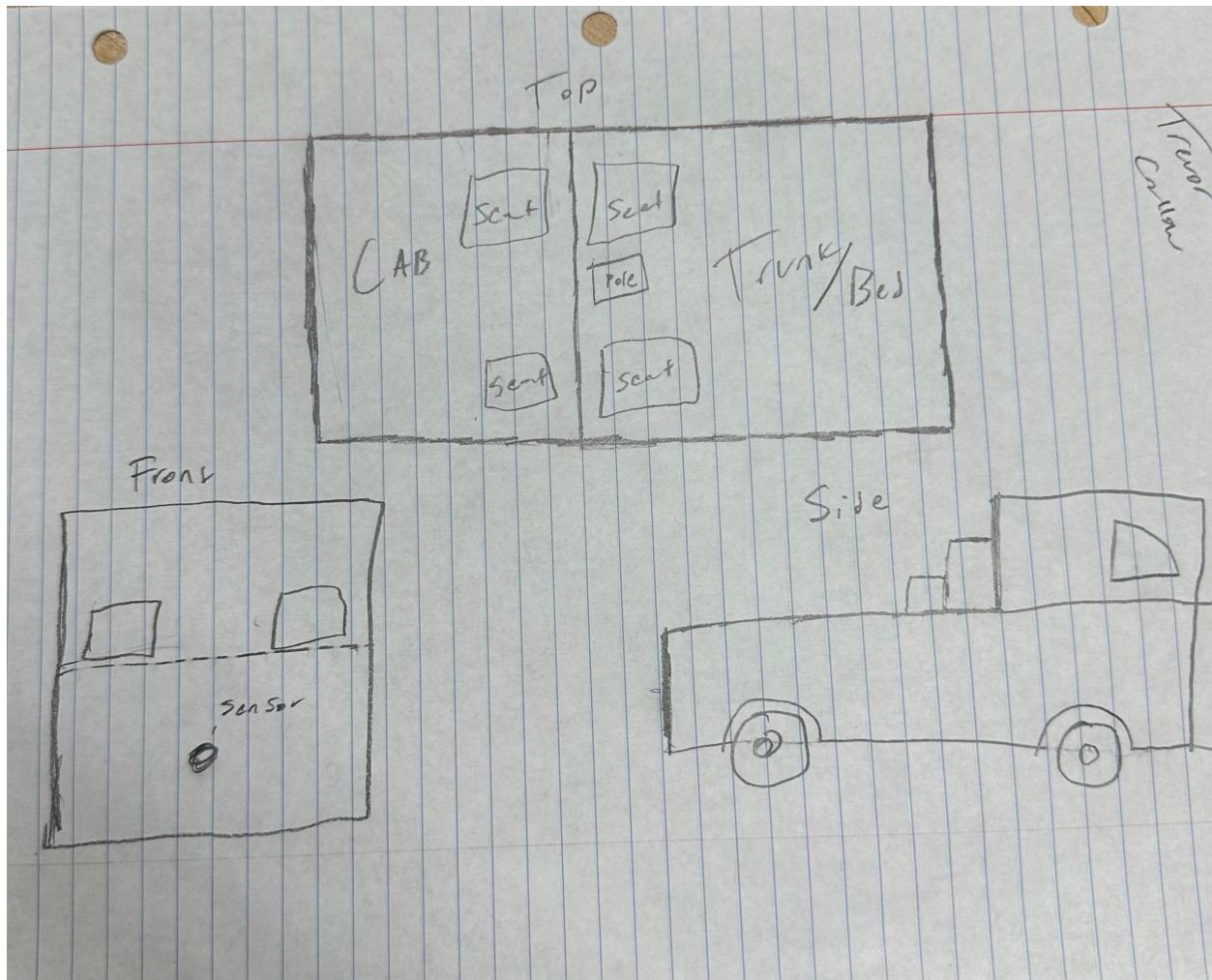


Prototype 3:

Form - Truck

Features - Wheelchair ramp, trunk/bed, lots of space/seats, low to the floor, large wheels, sensor.

There are many pros to this design. One is the wheelchair accessibility since it will have a wheelchair ramp. Another is the trunk since it allows space for storage and a wheelchair. Another is how low it will be which will help with control. The large wheels will also allow better traction. Lastly, the sensor in the front will be able to detect the traffic light. The cons are it will be more on the heavy side, and will have only two seats in the front while the rest will be in the trunk.



AHP:

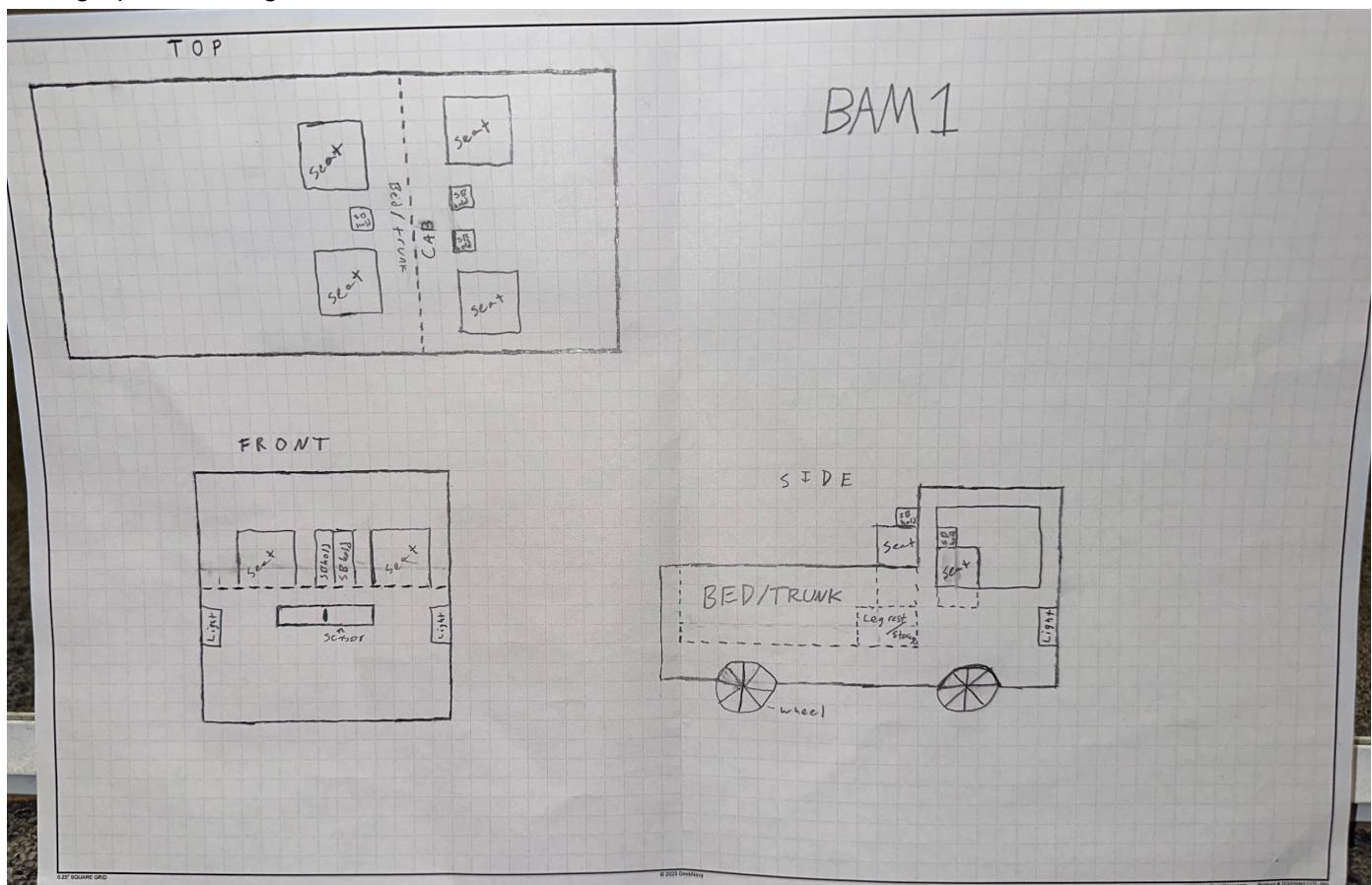
Criteria	WC	LW	SC	P	S	Total	Weight
Wheelchair Accessibility	1	1/7	1/8	1/9	1/6	1.546	0.024
Light Weight	7	1	3	1/2	1/2	12	0.189
Storage	8	1/3	1	1/8	1/6	9.625	0.152
Passenger capacity	9	2	8	1	5	25	0.395
Speed	6	2	6	1/5	1	15.2	0.240

Total					63.371		

Design Decision Matrix:

Criteria	Weights (%)	Limo		Bus		Truck	
		Rating Factor	Weighted R.F.	Rating Factor	Weighted R.F.	Rating Factor	Weighted R.F.
Wheelchair Accessible	2.4%	2	0.048	5	0.12	5	0.12
Light Weight	18.9%	5	0.945	2	0.378	3	0.567
Storage Compartment	15.2%	2	0.304	3	0.456	5	0.76
Holds a Large number of passengers	39.5%	4	1.58	5	1.975	5	1.975
Speedy	24%	4	0.96	2	0.48	4	0.96
Total	100%	3.837		3.409		4.382	

Orthographic drawing



Budget \$80

Item	Quantity	Cost item (\$)	Total Cost (\$)
Bread Board	1	2	2
Arduino UNO Board	1	20	20
Light Sensor	1	5	5
10500 RPM Motor	1	5.50	5.50
Rubberband	5	.10	.50
Cardboard ft^2	5	.10	.50
Balsa Wood 1/8"	2	.70	1.40
Aluminum rod 1/8"	2	1.30	2.60
Balsa Wood 1/4"	2	.90	1.80
Pulley 50mm	2	.50	1.00
'Pulley Attachment	2	.10	.20
150mm x 165mm solar panel	2	9.59	19.18
Various Cosmetics	1	7	7
Totals	27	52.79	66.68