

Temporary Closet Design

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Closet Aspiring Designers

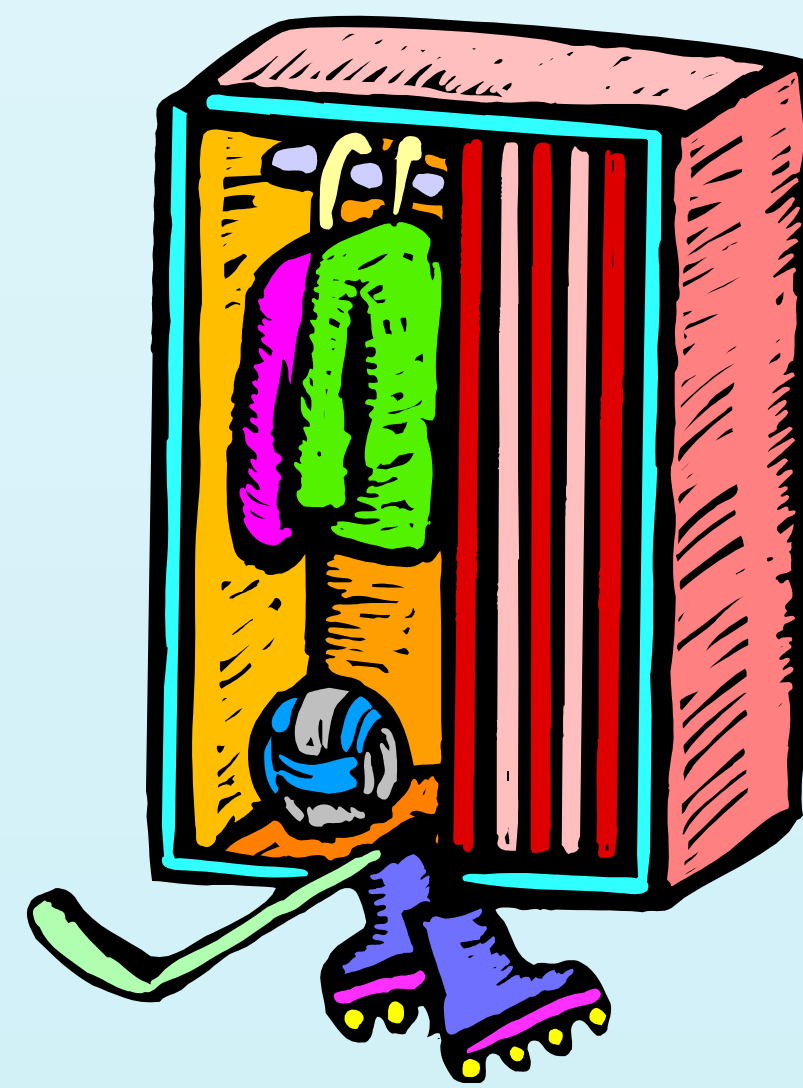
IDENTIFY THE NEED/PROBLEM

Design a durable and sturdy multi-purpose closet.

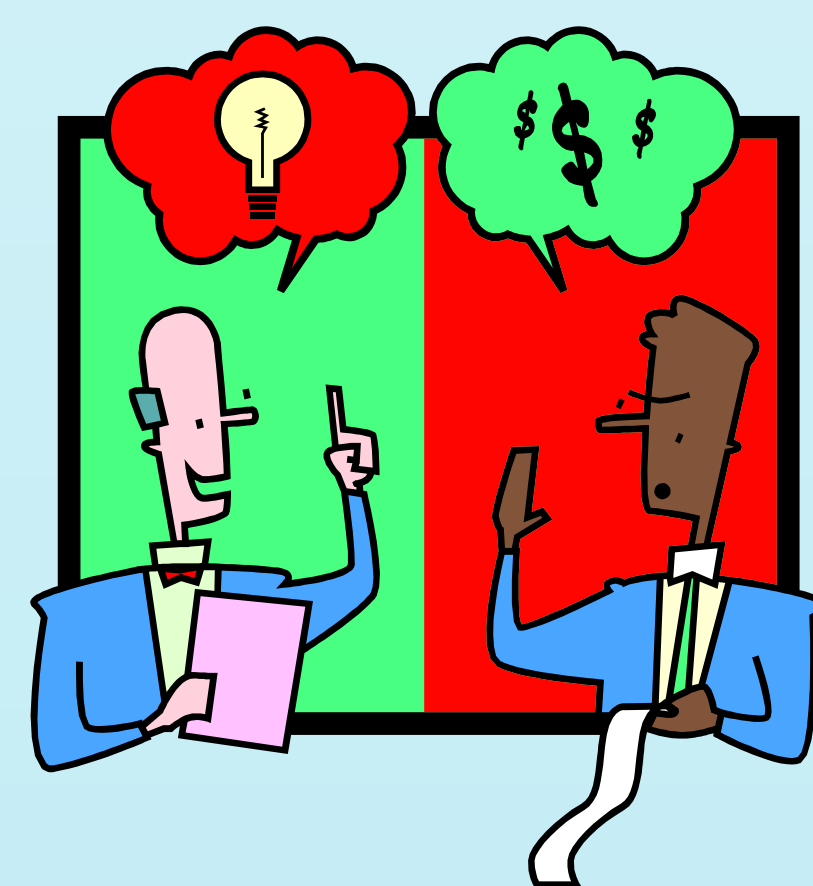
RESEARCH NEEDS

Design a closet that:

- Temporarily stores clothes and provides storage space
- Can be used on a daily basis – not just for seasonal clothes storage
- Has a sturdy design
- Is better quality than *Kmart* – but not as heavy as a “steamer trunk”
- Has a design based on IKEA furniture
- Would be used in guest room/office space
- Has a style that can be changed throughout its life span
- Is easy to assemble – DIY project
- Is low cost
- Is light weight
- Has low center of gravity
- Is attractive
- Is mobile
- Uses readily available materials/parts
- Minimizes packaging



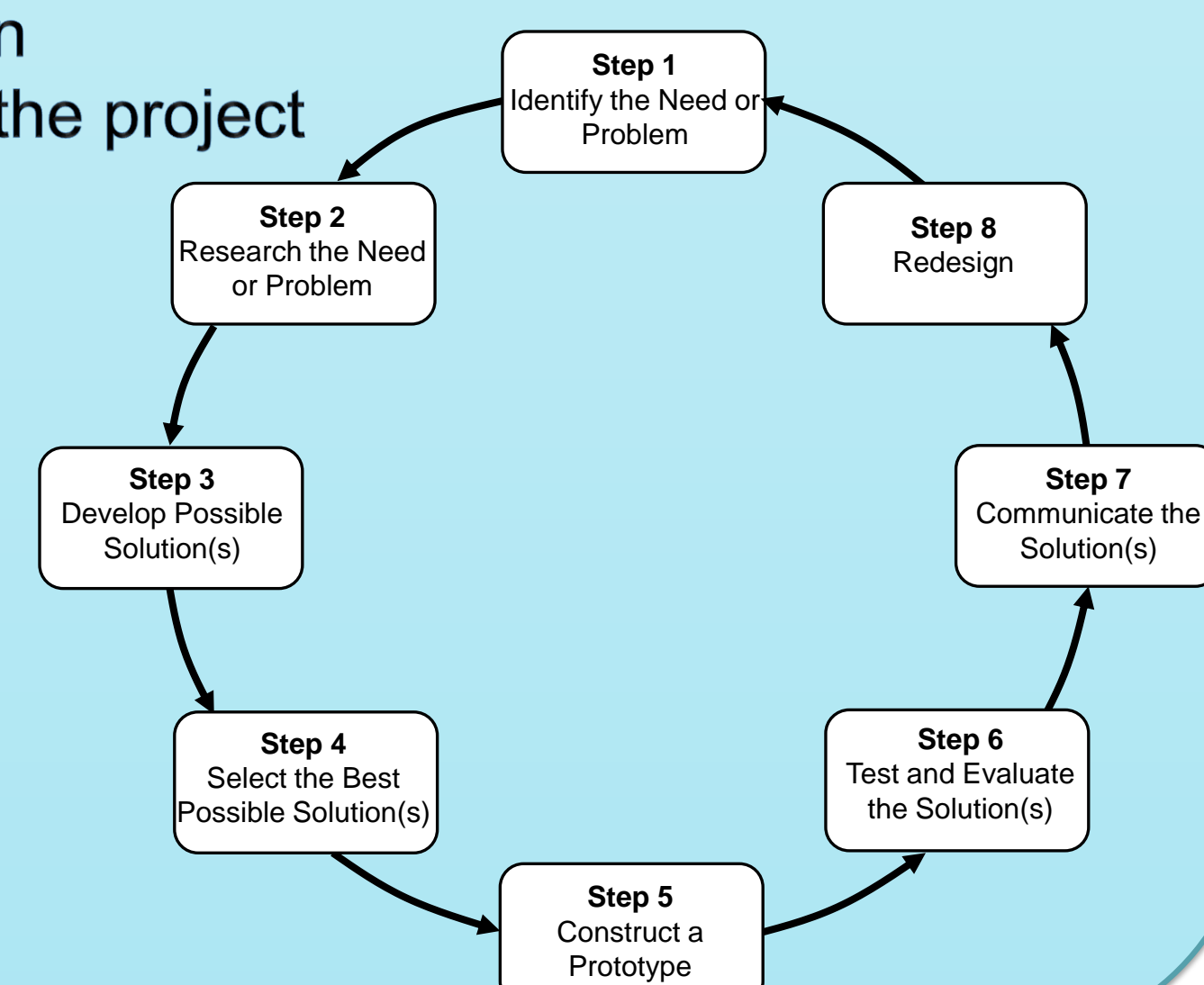
BRAINSTORMING



- Quick sketches of possible ideas
- Research on-line possible materials
- Research on-line existing temporary closets
- Research on-line possible material unit weights
- Research on-line possible unit costs
- Considered manufacturability
- Considered closet's structural issues
- Determine required depth of the closet
- Considered trade-offs

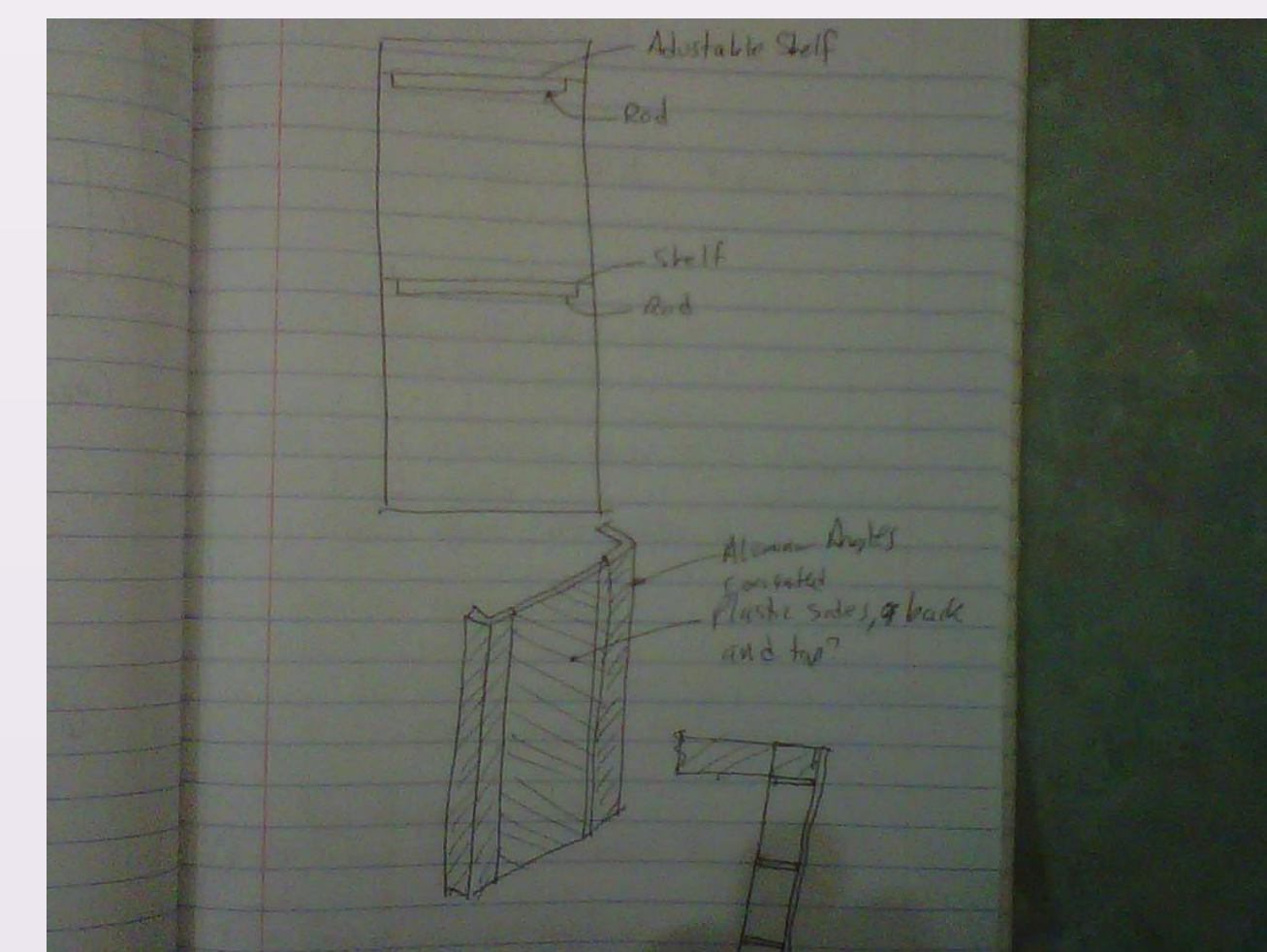
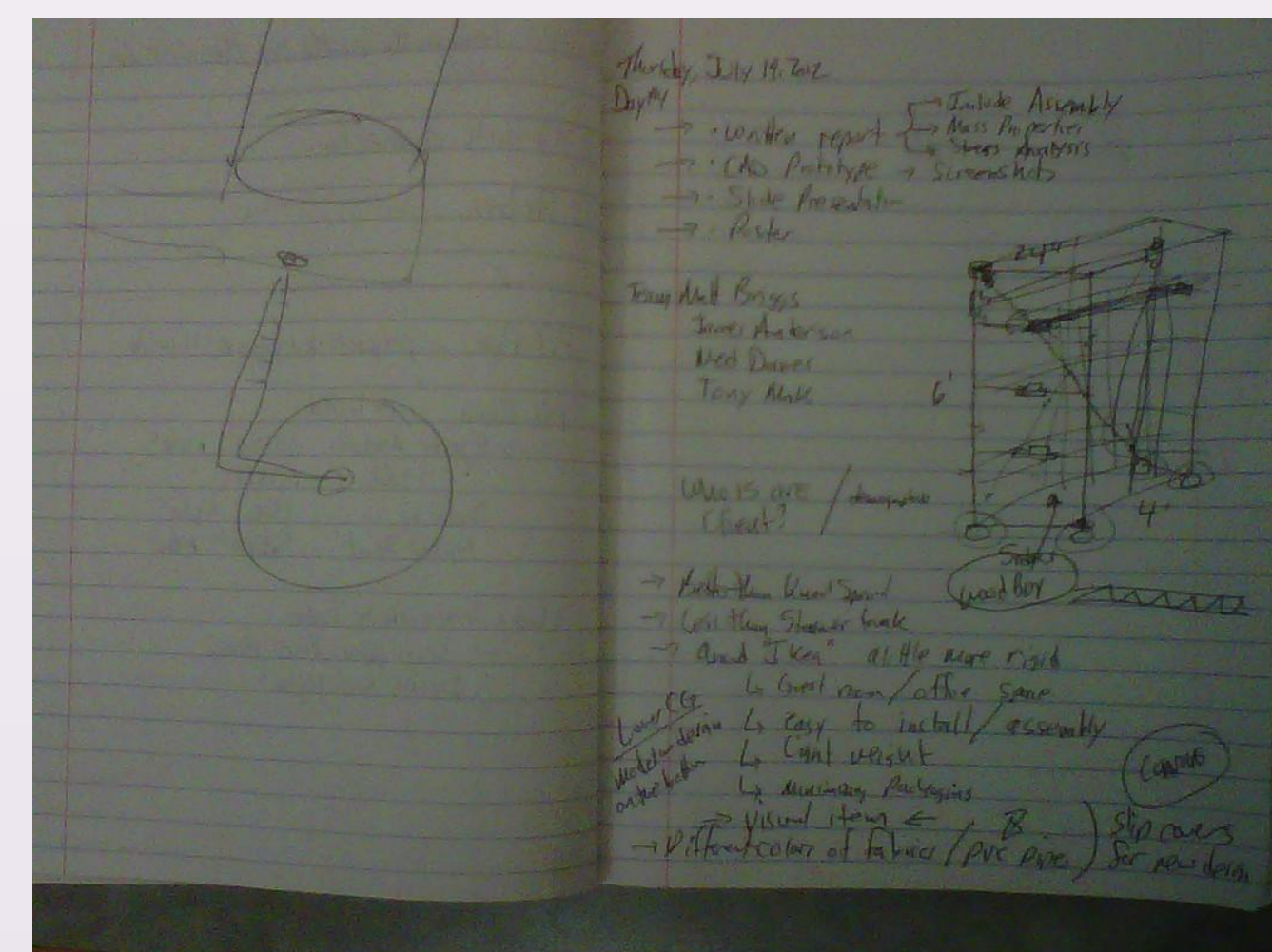
PROJECT PLAN

- Followed Engineering Design Process
- Team worked together to brainstorm and share ideas
- Assigned tasks and work distribution
- Held meetings at key points during the project



POSSIBLE SOLUTIONS

- Started with each member proposing their own solution
- Discussed the solutions – pros/cons
- Reviewed solutions against the project goals
- Selected construction materials to be used based on team's discussions
- Determine the fasteners needed to make unit
- Determined dimensions for the closet
- Developed a “hybrid” design that included elements of different solutions



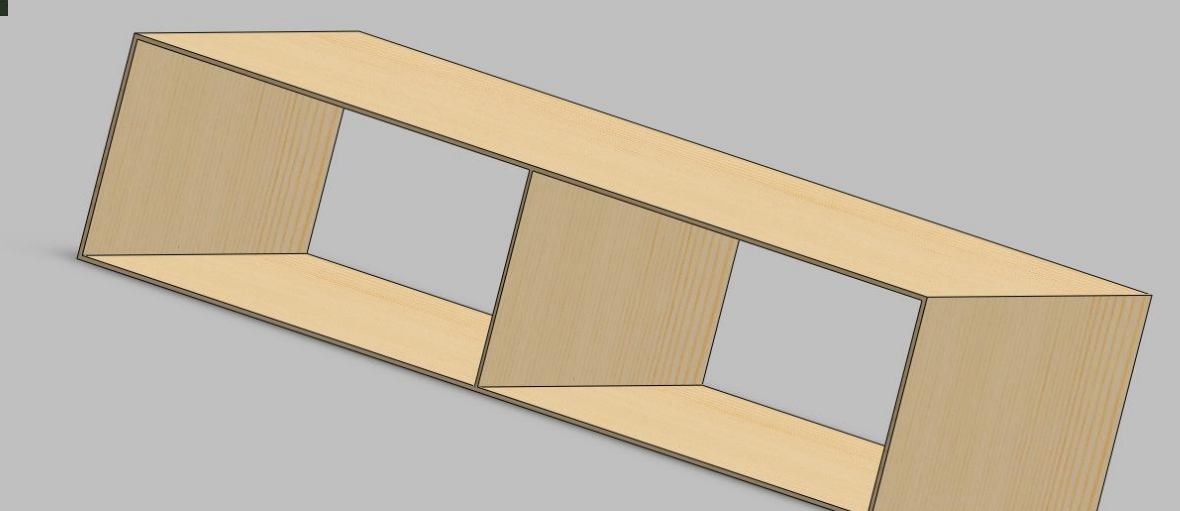
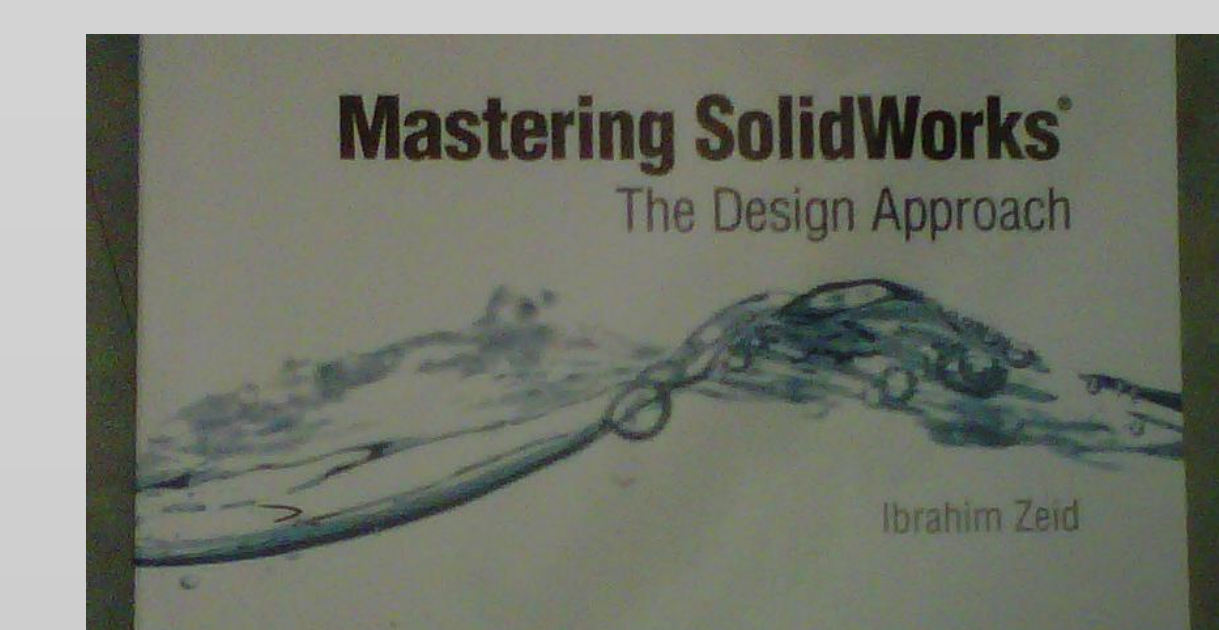
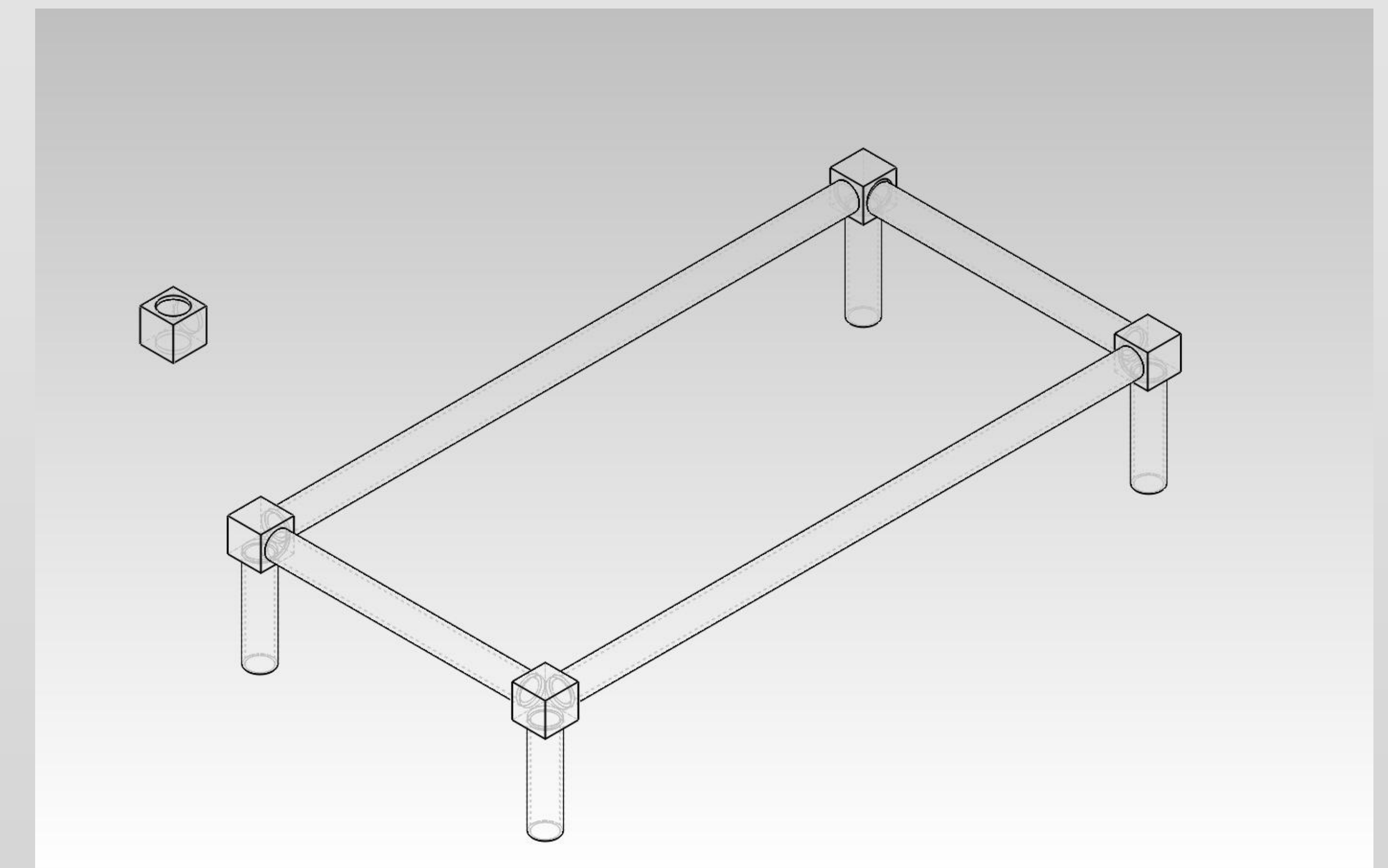
FINAL SOLUTION

Our preferred solution will provide years of service. The closet will come as a kit of pre-cut parts that can easily be fabricated. The selected design has options that allowed the user to customize it to meet their needs. The height of the clothes rod is adjustable. The bottom shelving unit is also removable. Also, the outside canvas covering can be supplied in many different colors and/or patterns. Thus, the closet would fit into any décor. If the décor of the room changes, the owner could order a new set of coverings without having to change the basic closet frame. The closet is mounted on locking casters, so it can be moved around the room.

Closet Frame Member: PVC Schedule 40 pipe								
Item	Description	Size	Length	Cost Base	Quantity	Cost	Mat'l Supplier	Weight(lb)
1	3-way PVC connector (1 1/2" PVC pipe)			\$2.05	8	\$16.40	Lowes	2.50
2	T-shape PVC connector (1 1/2" PVC pipe)			\$0.64	12	\$7.68	Lowes	3.74
3	PVC Schedule 40 pipe	1 1/2"	4'	\$1.92	6	\$11.52	Home Depot	12.24
4	PVC Schedule 40 pipe		2'	\$0.96	10	\$9.60	Home Depot	10.20
5	PVC Schedule 40 pipe		6'	\$2.88	4	\$11.52	Home Depot	12.24
6	PVC Schedule 40 pipe		4'	\$1.92	1	\$1.92	Home Depot	2.68
7	Turnbuckle (eye - eye)	3/16"	5 1/2"	\$1.61	2	\$3.22	Home Depot	0.12
8	Bailing wire	12 Gauge	14'	\$0.56	1	\$0.56	Uline	0.42
9	Caster			\$1.70	4	\$6.80	Staples	2.00
10	Wood Sheet for the bottom shelf/box	4' x 8'	1/4"	\$12.32	1	\$12.32	Home Depot	7.04
				Total Cost	\$81.54	Total Weight	53.18	

LESSONS LEARNED

- Need to listen to all the possible designs before selecting one – don't jump the gun.
- Need to understand the cost implications the different materials have on the final cost.
- The benefits of dividing the assignment into tasks so everyone was involved. Ask for help from your team members or to bounce off ideas.
- Good to periodically come together and share work efforts.
- Need to consider the complexity of the design versus to our *SolidWorks* understanding.
- Design didn't go exactly the way we planned.



TAKE AWAYS

- Understand some of the frustration experienced by my students.
- Had to move quickly with project, so didn't fully develop the solution before moving onto design.
- The “group” atmosphere pulled from individual expertise.
- It would be interesting to actually build our design and see how it works.