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Project Deliverable E: Project Plan and Cost Estimate

GNG 1103 – Engineering Design Faculty of Engineering – University of Ottawa

A project plan has been implemented for the established conceptual design for Bowie by Group A14. Following the most recent client meeting (October 11, 2018), it has been decided that the updated design will be a Portable Storage method. The project schedule has been included in Gantt chart form along with a brief breakdown of tasks and descriptions. Significant project risks are carefully considered along with a contingency plan for each risk. Cost estimates have been made based on overhead and materials throughout each prototype stage.

Task List

(Summary - Gantt Chart included)

Task	Description	Duration
Finalized design plan	● Following the client meeting, a team decision is made to proceed with a Portable Storage method.	1 day
Estimate costs	● Cost estimate meeting to breakdown each Prototype stage overhead and material costs ● Analysis by each team member	3 days
Prototype I - Preliminary Design	● Obtain materials ● Building meeting - manufacture Prototype I ● 3D model established with low cost materials ● Summary of Prototype I for final report	7 days
Prototype II - Detailed Design	● Obtain materials ● Build Prototype II as a group ● Testing requirements applied ● Add additional details to report regarding this prototype stage	16 days
Prototype III - Manufactured Design	● Obtain materials ● Design and build for operation ● Thorough detail on procedures and operations for Prototype III	10 days
Presentation to Client	● Perform reliability of product for client observation	1 day

Project Risks

Risk	Description
Obtaining larger materials	Items may not be close enough to pick up ourselves and would require shipping. As it is common occurrence for arrival dates to be delayed, this is a major concern as it would disrupt the project schedule.
Incorrectly manufacturing an expensive part	This would derail the planned schedule if a piece is not properly manufactured such as a mechanical failure or is damaged during transport.
Proper scheduling to have prototypes done.	The would cause the group to submit a lower quality of work as the prototypes would be rushed for the deadline.
Shipping costs	Some items may not be close enough to pick up ourselves and would require shipping. This can be very costly, especially if it is being sent from another country.
Improper installation/Human mistakes	A piece of plywood, for example, may not have been cut to the required dimensions. This is costly in terms of time and money as it would necessitate alteration or replacement parts.

Estimated Costs

Prototype I

Overhead:

Transportation

Materials

Popsicle sticks - $2.50
Wooden dowels - $3.75
Fabric - $1.25
Platform (cardboard, wood platform) - $3
Rope - $1.25

Total = $11.75

Prototype II:

Overhead:
- Transportation

Materials:
- Screws - $7
- Nuts and Bolts - $ 1 each
- Sheet metal - $15
- Plywood - $13
- Collapsible metal polls
- Door hinges - $3 each

Total = <$50

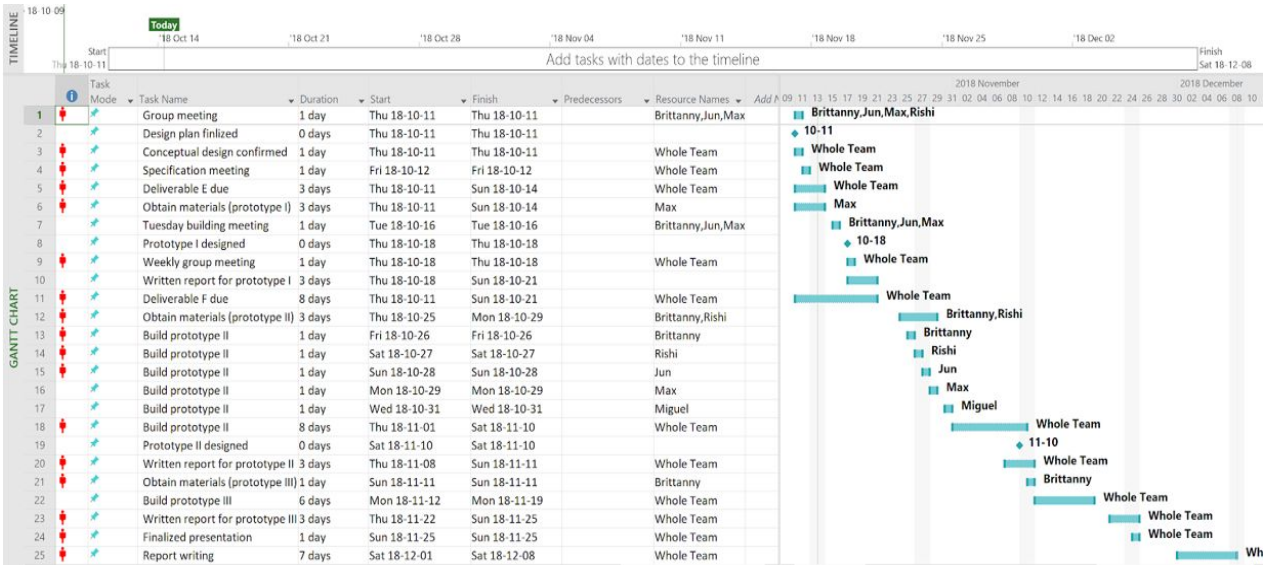
Prototype III:

Overhead:
- Transportation
- 3D Printing

Materials:
- Plywood - $13
- Collapsible metal polls
- Waterproof fabric $ 17 (1m*1.5m)
- Tent Stakes
- Flex seal - $20
- Door hinges - $3 each
- Screws - $7
- Nuts and Bolts - $1 each
- Plexiglass
- Sheet metal - $15
- Paint - $5

Total = <$100

Gantt Chart



Material References

[1] Official Site - Flex Seal® Family Of Products. (2018). *Flex Seal®, in Original, Brite, and Clear. The easy way to coat, seal, protect, and stop leaks fast!*. [online] Available at: https://www.flexsealproducts.com/product/flex-seal/ [Accessed 14 Oct. 2018].

[2] Amazon.ca. (2018). [online] Available at: https://www.amazon.ca/Flex-Tape-Rubberized-Waterproof-inches/dp/B07FCPW18N/ref=sr_1_4?ie=UTF8&qid=1539361984&sr=8-4&keywords=flex+seal&dpID=51gPa4cH2TL&preST=_SY300_QL70_&dpSrc=srch [Accessed 14 Oct. 2018].

[3] Amazon.ca. (2018). [online] Available at: https://www.amazon.ca/dp/B06XTZBM4M/ref=sspa_dk_detail_0?psc=1&pd_rd_i=B06XTZBM4M&pf_rd_m=A3DWYIK6Y9EEQB&pf_rd_p=0c4797d7-01ae-4f2b-9625-15b63bbba1db&pf_rd_r=TGJM2SW9601Y090EVA29&pd_rd_wg=AwYUo&pf_rd_s=desktop-dp-sims&pf_rd_t=40701&pd_rd_w=o1vmP&pf_rd_i=desktop-dp-sims&pd_rd_r=a1d20cd2-ce3b-11e8-84cd-5d1350972647 [Accessed 14 Oct. 2018].

[4] Amazon.ca. (2018). [online] Available at: https://www.amazon.ca/CleverMade-CleverCrates-Collapsible-Storage-Container/dp/B0788BN8CL/ref=sr_1_1?ie=UTF8&qid=1539361595&sr=8-1&keywords=CLEVERCRATES+3+PACK+%E2%80%93+COLLAPSIBLE+62+LITER+UTILITY+CRATE+WITH+LID&dpID=41w-Wzpo58L&preST=_SX300_QL70_&dpSrc=srch [Accessed 15 Oct. 2018].