Project Deliverable E

Project Schedule and Cost

University of Ottawa

GNG 1103

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Abstract

In this deliverable, we have finalized the conceptual design and came up with a detailed diagram of the solution that meets the client's needs. In order to successfully create a final solution, we plan to carry out three prototypes, and each prototype will be reviewed and refined during our group's weekly meeting. We have updated our Wrike page with a detailed project plan with assigned members, duration and due dates. At the end of each prototype plan, we will go over the risk assessment to further reinforce our design. The materials and their cost are listed.

Table of Contents

1. Introduction

Setting a clear plan for the future deliverables and prototypes plays an essential role in not only improving product quality but also facilitating team communication and lessening conflicts. In this deliverable, we will present a detailed diagram of our final product as well as the list of materials of prototypes and their costs. We will also outline the plans for prototypes which will take place three times. The project plan will give information about assigned members, duration and due dates. This deliverable will also explore the possible risks of the prototype plans and contingency plans for each risk.

2. Project Plan

Table 1. Project Plan for Three Prototypes and Final Product

Task	Assigned	Duration	Due date
Prototype plans	Everyone	7 days	October 21, 2021
Revise the plan based on the client feedback	Everyone	7 days	October 25, 2021
Modifying the design-Zoom meeting with Mohd	Fred and Don	1 day	October 27, 2021
Revising Deliverable E	Everyone	3 days	November 3, 2021
Buying materials	Fred and Don	1 day	November 3, 2021
Prototype I	Everyone	7 days	November 3, 2021
Revise Prototype I & Deliverable F	Everyone	2 days	November 4, 201

Prototype II	Everyone	7 days	November 9, 2021
Revise Prototype II, risk assessment & Deliverable G	Everyone	5 days	November 11, 2021
Prototype III	Everyone	7 days	November 15, 2021
Revise Prototype III & Deliverable H	Everyone	7 days	November 25, 2021
Final design presentation & Deliverable I	Everyone	7 days	December 1, 2021
Final presentation & Deliverable J	Everyone	3 days	To be announced
User and Product Manual & Deliverable K	Everyone	7 days	December 8, 2021

3. Wrike charts

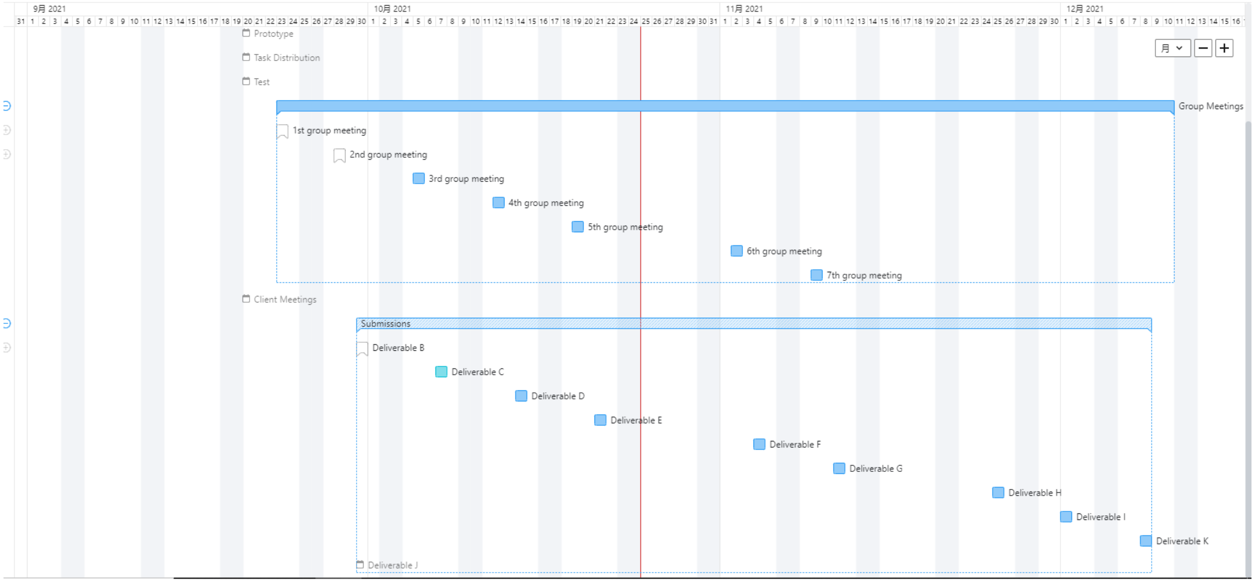


Figure 2. Gantt chart from Wrike

Note. Due to the ongoing technical issue with Wrike, we have attached a Gantt chart from our old Wrike project page.

4. Risks and Contingency Plans

Our group members are studying at different locations, only a few members are on the Ottawa campus. Constructing the prototype and the final solution may be a great challenge since the group cannot gather in person. This may lead to design disputes, or missed ideas because passionate discussion in person leads to greater ideas. This is slightly mitigated because we have regular online meetings, but since our schedules vary so much, it is a rarity for the entire group to meet. Though, we can have a daily check-in where every group member will discuss progress or concerns with text. We also regularly check the Wrike page and update it everyday. Any major change will be notified via the group chat and emails and this would be updated on the Wrike as well. Since it would be challenging to carry out the prototypes all together, we can do the virtual meet up with cameras on and participate in each progress.

Setting the sensitivity of the motion detector might be a challenging part. Some objects might fall from a grocery bag and this could be detected by the sensor. To overcome this risk, we would vary the sensitivity of the motion detector so any minor movements could be ignored.

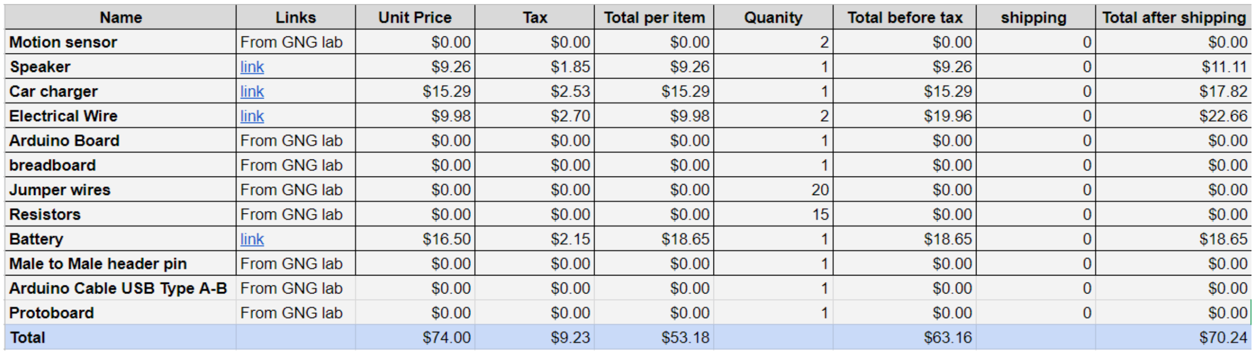
Another risk with the motion detection is to activate it when a car engine is off. We have to make sure that it works even after the engine goes off. For its contingency plan, we will attach a backup battery so that it can function under any circumstance.

Determining the sound level of the audio system would also be complicated. The sound should be loud enough for others to hear and small enough not to frighten a child too much. We will try different frequencies of the sound alarm during three prototype plans.

5. Bill of Materials

For the motion sensor with audio system, we need the following components: two Motion sensors, one speaker, one car charger, two usb cables, one arduino board, one breadboard, twenty jumper wires, fifteen resistors, and one battery. Finally, our price in total will be $70.24.

Table 2. List of Materials and their cost



Name	Links	Unit Price	Tax	Total per item	Quanity	Total before tax	shipping	Total after shipping
Motion sensor	From GNG lab	$0.00	$0.00	$0.00	2	$0.00	0	$0.00
Speaker	link	$9.26	$1.85	$9.26	1	$9.26	0	$11.11
Car charger	link	$15.29	$2.53	$15.29	1	$15.29	0	$17.82
Electrical Wire	link	$9.98	$2.70	$9.98	2	$19.96	0	$22.66
Arduino Board	From GNG lab	$0.00	$0.00	$0.00	1	$0.00	0	$0.00
breadboard	From GNG lab	$0.00	$0.00	$0.00	1	$0.00	0	$0.00
Jumper wires	From GNG lab	$0.00	$0.00	$0.00	20	$0.00	0	$0.00
Resistors	From GNG lab	$0.00	$0.00	$0.00	15	$0.00	0	$0.00
Battery	link	$16.50	$2.15	$18.65	1	$18.65	0	$18.65
Male to Male header pin	From GNG lab	$0.00	$0.00	$0.00	1	$0.00	0	$0.00
Arduino Cable USB Type A-B	From GNG lab	$0.00	$0.00	$0.00	1	$0.00	0	$0.00
Protoboard	From GNG lab	$0.00	$0.00	$0.00	1	$0.00	0	$0.00
Total		$74.00	$9.23	$53.18		$63.16		$70.24

Table 3: list of materials and their cost

6. Conclusion

In this deliverable. We discussed and summarized a lot of ideas about the final design, during which a lot of conflicts occurred, but after the final discussion, we came to the use of a motion sensor with an audio system. Finally, we summarized everything to get a specific money cost, which is $70.24, This deliverable gives us a plan of ideal project goals and essential to its completion

7. References

1. Motion sensor from amazon
   https://www.amazon.ca/HC-SR501-Sensor-Infrared-Arduino-Raspberry/dp/B07KBWVJMP/ref=sr_1_8?crid=2YIN8YQLV007E&dchild=1&keywords=motion+sensor&qid=1635890959&s=electronics&sprefix=motion+sensor%2Celectronics%2C70&sr=1-8
2. Speaker from amazon
   https://www.amazon.ca/Gikfun-Speaker-Diameter-Arduino-Speakers/dp/B07BFTYY6L/ref=asc_df_B07BFTYY6L/?tag=googleshopc0c-20&linkCode=df0&hvadid=292954337233&hvpos=&hvnetw=g&hvrand=14192259378176631480&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9000668&hvtargid=pla-570864857001&psc=1
3. Car charger from amazon
   https://www.amazon.ca/AmazonBasics-Straight-Cable-Lightning-Charger/dp/B071GQXN34/ref=sxin_24_trfob_1_B071GQXN34?cv_ct_cx=car+charger&dchild=1&keywords=car+charger&pd_rd_i=B071GQXN34&pd_rd_r=2164c80b-9ad1-4394-9827-48a11b42a882&pd_rd_w=gmTmf&pd_rd_wg=y2tCG&pf_rd_p=17bf0ca7-78b7-4417-b850-a1b798951005&pf_rd_r=1AX49ZK44HSA4MYCDSDG&qid=1635890867&sr=1-2-88885c67-3e9a-4f61-b390-265a2c73318e
4. Electrical wire from amazon

https://www.amazon.ca/WGGE-WG-026-Pieces-Colors-Alligator/dp/B06XX25HFX/ref=asc_df_B06XX25HFX/?tag=googleshopc0c-20&linkCode=df0&hvadid=335446398418&hvpos=&hvnetw=g&hvrand=3357570347400768987&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9000668&hvtargid=pla-568154706689&psc=1

5. Battery from amazon
   https://www.amazon.ca/502030-BlueParrott-Bluetooth-Replacement-Nextbase/dp/B08TBY5BFL/ref=sr_1_3?crid=213IFIKU3X948&dchild=1&keywords=small+rechargeable+battery&qid=1635892431&s=electronics&sprefix=small+rechargeable+battery%2Celectronics%2C67&sr=1-3