

DBM 215 Project Outline Template

Define - Interview A fellow classmate for 10min. Within this time, take note of the issues they face in their day-to-day life in the space provided below. Try and get insight on this issue.

Person Interviewed: Stacy - Customer

Question: How are you doing today?

Response: I'm good thanks for asking.

Question: What is your home life schedule like?

Response: Well, I get up in the morning, get ready and eat breakfast, then I go to work. Once I get home from work, I usually spend some time doing something, then I eat dinner, get ready for bed, put my phone and watch on the charger, and then head to bed.

Question: Do you charge your phone and watch every night?

Response: I do charge my phone every night since I use it a lot during the day. However, I only really charge my watch when it is close to dead.

Question: How is your experience charging your watch? Do you have to do it frequently?

Response: My watch lasts me about two days - sometimes three. However, whenever I put my watch on the charger next to my bed, it makes its way to the floor. My cat likes to push it off when she is climbing on things.

Question: So your cat pushes your watch off of your nightstand. Why not your phone?

Response: I usually put my phone face down so that if I get notifications, it doesn't blind me at night. However, the watch charger doesn't allow for the watch to sit face down and so there's not much I can do for that.

Question: Have you thought of anything to change the way you charge your watch?

Response: I have been thinking of getting a new watch, but that is a costly expense. On top of that, I like my current watch and even if I get a new watch, that might not solve the problem of my cat pushing it off at night because it lights up.

Question: Do you think your cat pushes your watch off the nightstand because it lights up at night?

Response: I do think so. On nights I don't get any notifications and the watch face doesn't light up, my watch is still on the nightstand. However, nights I get lots of notifications, the watch ends up on the floor.

Question: Have you tried doing anything to reduce the number of notifications that you get?

Response: No, and sometimes I need to get those notifications. I could just turn off notifications at night but if someone is trying to contact me and it is an emergency, I might not be able to see it and it could cause a lot more problems.

Identify - Using the above notes, create a concise problem statement for what the issue is they are facing. 1-2 sentences in length.

I need a solution to charge my watch without my cat pushing the watch off the nightstand when it is charging.

Guidelines:

- Identify a realistic problem
- Take comprehensive notes for future reference
- Create a concise problem statement that encompasses all aspects of the problem discussed
- DO NOT create a solution for the problem

Criteria	Rating (25 points total)				
Interview	Complete and comprehensive Interview Notes	Sufficient interview notes	Interview notes, lacking interview participation	Minimal notes and lacking participation	No submission
Problem Statement	Comprehensive Problem statement	Sufficient Problem Statement	Missing clear description of problem	No clear problem defined	No submission

Brainstorm - Take 10min and brainstorm solutions for previously identified problems. Use sticky notes provided in class. After the 10min is up, rank the top 5 solutions in the space given below

Possible Solutions:

- Get a new watch
- Charge watch somewhere else
- Cover watch when charging
- Turn off notifications at night
- Put cat in another room
- Turn watch off at night
- Wear watch at night and charge during the day
- Turn watch upside down when charging

Identify - Use the below solution selection matrix to identify your top 2 solutions. Use a 1-5 rating scale with 5 being most desirable. The total score will provide the rank of the solutions

Solution	Effectiveness (1-5)	No Effort Required (1-5)	No Issues Caused (1-5)	Cost (1-5)	Total
Charge watch somewhere else	3	3	2	5	13
Cover watch when charging	5	4	5	4	18
Put cat in another room	3	2	3	5	13
Turn watch off at night	5	4	3	5	17
Wear watch at night and charge during the day	5	5	4	5	19

Top Two Solutions:

Cover watch when charging & wear watch at night and charge during the day

Guidelines:

- Brainstorm for 10min
- Write every possible idea that comes to mind, no idea is too far from reality
- DO NOT stifle ideas during brainstorming session
- Rank the top 5 solutions, come to a consensus with teammate
- Use solution selection matrix to decide the solutions that will move to the next phase

Criteria	Rating (25 points total)			
Brainstorming Participation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No submission

Select – Given the 2 best solutions identified in the previous activity, you are now going to Model and plan the efforts to create a physical prototype out of everyday materials. List the materials and plan of action below.

Perform second interview prior to design and fabrication

Person Interviewed: Stacy - Customer

Question: I have a few solutions I want to present to you.

Response: Fantastic, I can't wait to hear what they are.

Question: The top two solutions where to cover the watch when charging or to wear the watch at night and charge it during the day. Are either of these solutions possible for you?

Response: I see what you mean. Charging the watch during the day would most likely solve the problem, however, I work during the day and so I would not be at home to charge it. I could bring the charger to work but then if I forget it or am too busy to charge the watch, then it becomes another problem. I like covering the watch when charging at night a lot more as it doesn't disrupt my current schedule a whole lot.

Question: Okay, great. So, we will go with covering the watch during charging at night. Do you have any preferences before I design something? Or maybe you want something simple like covering it with a blanket?

Response: I see how covering it with a blanket may solve the problem outright, however, I worry when charging if it will get hot and possibly be a fire hazard. I think ideally, I want something that covers it only when I want it covered, can be easily removed when I need to use it, and has a small footprint on my desk. Also, I would like it to be fit the rest of the décor and not stand out too much.

Question: Alright sounds good. Is cost at all an issue?

Response: Not really. If it ends up costing a few dollars, then that is fine. Obviously if the solution costs the same amount as purchasing a new watch, then it doesn't make sense.

Question: Makes sense. I will get to work making a solution and let you know when it is ready.

Response: Great thank you. I am anxious to see what comes of this!

Once I had the second interview with the customer, I went through a few different ideas on how to create a charging dock or stand that would cover the watch so that the cat isn't able to knock it off the nightstand. I went with a sliding door mechanism with case that would allow the watch to sit inside. This design would allow for the watch to sit inside of the case and be accessible when open and not allow the cat to get at the watch when closed. Once I had that figured out, I moved onto material properties for the design. For the product, I went with using PLA as the material since the case wasn't going to be under any high stress or heat. This would also allow it to have more color options and be printed easier. For color, the customer described the nightstand as black in color with white accents. Because of this, I decided to go with a black case and a clear-white door. Finally, for fabrication process, because the watch and stand together were quite large, I went with FDM machining to create the product.

Guidelines:

- Map out a plan of creation for the initial prototype
- Create the desired prototypes using the materials provided in the classroom
- Perform "testing" of design to determine usability
- Select a final design for prototyping