Anya Barrus

Human Rights Prototype Design and Creation
8th Grade MIT

Task: You will develop a prototype that will help address a human rights problem that you have identified. You final prototype must be created using an innovative technology program (app creation, website creation, 3D printing, laser cutting, etc) that you have learned about during the semester.

Learning Targets:

- HOS: I can produce work that is neat, accurate, and thorough.
- HOS: I can take responsibility for what I say and do by focusing on my learning and staying on task individually or in a group.
- I understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and am able to transfer my knowledge to explore emerging technologies.
- I know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

Reflection

The Problem: What specific human rights problem were you trying to solve?
I was trying to solve the right to life.
Prototype Development: What is your prototype and what programs/technology did you use to create it?
My prototype is a watch that monitors the user's vitals. I created a non-functioning version of my prototype using the program Code.org
Social Impact
1. How did you think this prototype could have a positive social impact?
I think this prototype could have a positive social impact by making people more aware of their health, and helping to prevent serious health issues.
2. What do you think you did well in developing this prototype?
I think I did well in designing the app's main functions, and how it looks.
3. What was difficult in developing this prototype and how did you work around it?
One difficulty I had while developing this prototype was that Code.org didn't have a lot of the features I needed. I worked around it by making some parts only for display, and non-working.
4. What did you learn during this project?
I learned how to use Code.org during this project.
5. What would your next step be if you could bring your prototype into full production?
My next step if I could bring my prototype into full production would be switching to a different coding language that has more features.
Portfolio Submission:
What section (MKS, HQW, Character) of your portfolio will you include this project in and why?
My prototype falls under High Quality Work, because I made multiple drafts, and improved the project on each draft. I also made constant

improvements to my prototype, and my app runs without any errors.

Your submission must include:

Prototype (link and printout for digital submissions or the actual product)
Project Guide - Innovation Prototype and diagram
Researching Computer Innovation
Innovation Prototype Presentation
Prototype Backwards Planning
Prototype Calendar
Innovative Prototype Revision

Name: Anya Barrus Date: 4/25/19

Human Rights Innovative Prototype

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Category	4	3	2	1
Timeliness: My prototype is complete and submitted by the due date	My prototype is turned in on time, and is complete. 40	My prototype is turned in but is missing a required element.	My prototype is several days late and/or is missing more than 1 required element.	I chose not to submit a prototype.
HQW Standards: I can produce a prototype that demonstrates high quality work.	Prototype is neat, well presented, and the purpose is clear. It looks as though I put quite a bit of time and effort into it.	Prototype has some errors, but is relatively neat and has a clear purpose. It looks as though I put some time and effort into it.	Prototype is messy, does not have a clear purpose, and looks as though I did not put forth much effort.	Prototype does not meet High Quality Work standards.
Technology Concepts: I can demonstrate the use of technology to address a problem.	Prototype is complex, consisting multiple functioning inputs and outputs and demonstrates a clear idea of what a final product could look like and do.	Prototype has at least one input and output that functions and provides an idea of what a final product could look like and do.	Prototype is basic. It may not be functional and doesn't provide a an idea of what a final product could look like and do.	Prototype isn't complete or wasn't turned in.
Design Process: I know and use a deliberate design process to solve a problem.	The problem is well-defined, including a target audience, details of the problem, and how to tell it has been solved.	Prototype addresses a general problem and provides a general solution.	Prototype begins to address a problem but it isn't clear what or how it works.	Prototype doesn't address

Stars:

Anya, your app looks great and you have used all of the options possible in code.org to make your screens work. You have a well thought out design and clearly addressed the problem.

Steps:

Next steps are to include more advanced code to get more functions

Name(s) Anya Barrus Period AM Date 3/11/19

Project Guide - Innovation Prototype

Overview

Designing a computing device that combines hardware and software requires a good deal of preparation. Starting with a clear plan can help you stay organized and identify issues ahead of time. A lot of the work you do here will make it much easier to keep track of what you need to do once you begin creating your device, both the physical and software components.

Device Goal and Design

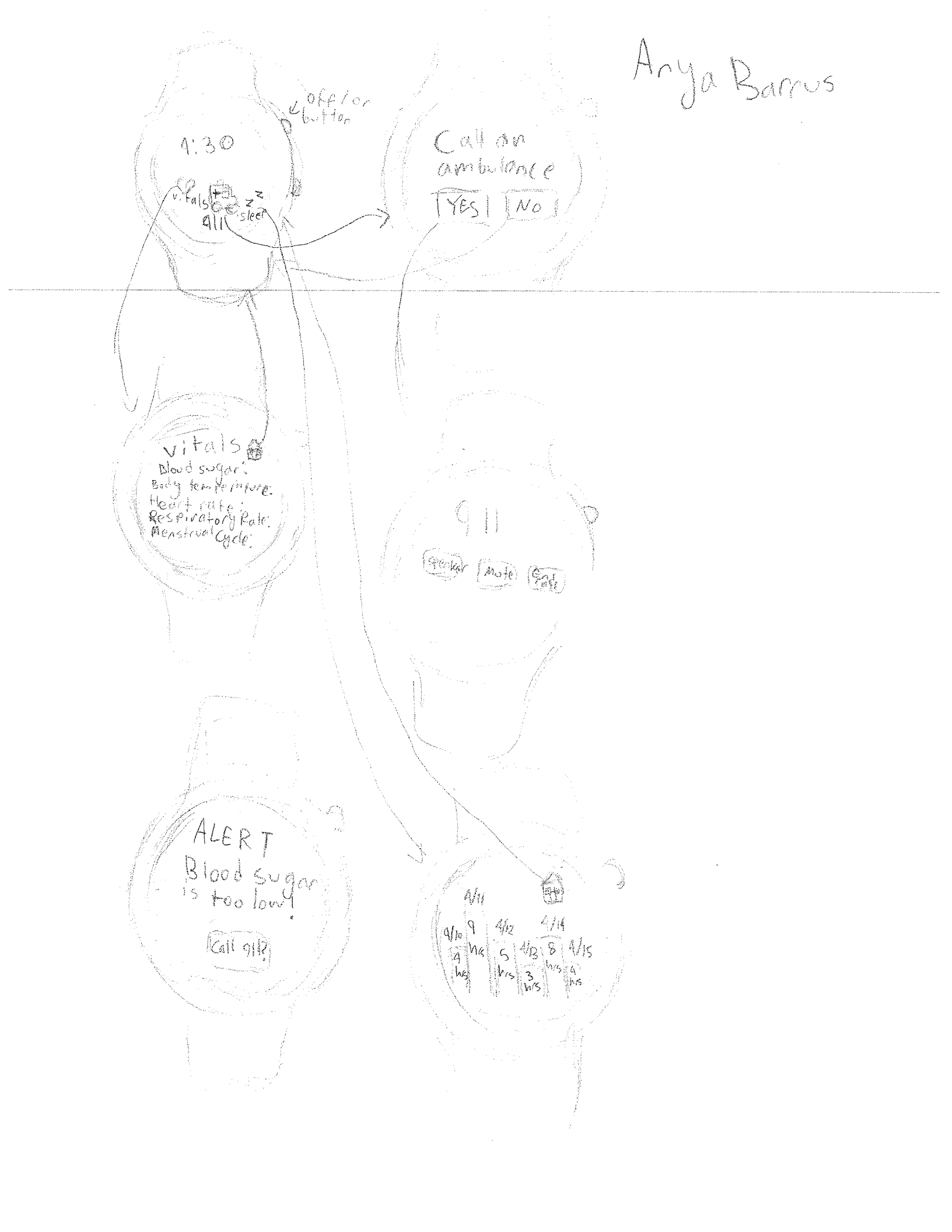
Start by thinking about what problem your device is going to solve. How will the user interact with it? How does it communicate information back to the user? What shape will it take?

Sketch and Describe Your Device

Describe your device and roughly sketch out the main elements. Label each element.

My device is designed to solve the problem of people facing underlying health issues, that they don't find out about until it's too late. My prototype will be a smart watch, that the user can interact with by tapping on the touch screen. It will communicate information back, by displaying information on the screen.

Anya Barrus


9:30
V. Fals
911
sleep
off/on button
Call an ambulance
YES
NO
vitals
Blood sugar:
Body temperature:
Heart rate:
Respiratory Rate:
Menstrual Cycle:
911
speaker
mute
End Call
ALERT
Blood sugar is too low!
Call 911
9/11
9/10
9 hrs
9
hrs
4/12
5 hrs
4/13
3 hrs
4/14
8 hrs
4/15
4 hrs

Anya

Backwards Planning

Answer these questions first and then add deadlines to your project calendar.

1. Determine Goal. What is your prototype exactly? What is it made out of or by?
   My prototype is a smartwatch, it would be made of a small computer, which would a contain a processor, a ram drive, a display, a battery, and more. It would also be made of metals, glass, and plastic.
2. What are the steps you need to ensure your finished product works? Testing? Revision?
   I need to test my prototype, and test all features, and revise it based on issues I find in my prototype.
3. What process do you need to go through to make your prototype? Design? Building materials.
   I need to design a physical prototype, and code the screens I would need for it. Unfortunately, I am unable to create an actual working prototype, because the materials are too expensive, (Aluminum, platinum, gold, silver, copper, etc) I am a not a skilled engineer, and because Code.Org does not contain the features I need to code it.
4. How will you learn how to use the materials, equipment, or software?
   There is no software available for me to create this. I am unable to create a smartwatch, because I have no training, and I don't know anyone who could teach me. Because of this, I will just make a non functioning prototype screen using Code.org, and a non functioning physical prototype.
5. What materials, equipment, or software do you need to make the prototype? How will you figure this out? Who will you talk to?
   I will create my non functioning physical prototype using the school's 3D printer, and I will create my prototype display using Code.org.

Namé(s)_____Anya_____ Period _____ Date _____

Activity Guide - Computing Innovations

Innovation Research

Choose one of the following topics, and research the latest innovations in computing hardware. The goal here is to find the **most recent** innovative computing devices within your chosen topic. Keep an eye out in particular for devices that don't *look* like what you might expect a computer to be.

Topics (check the one you've selected)

Wearable Technology (eg. clothing, jewelry, or accessories with built-in computers)

- ❑ **Health and Safety** (eg. devices that treat disease, track your health, or protect users from danger)
- ❑ **Agriculture** (eg. technology to improve the effectiveness, sustainability, or efficiency of farming)
- ❑ **Manufacturing** (eg. advancements in rapid prototyping, industrial robotics, and the production of goods)
- ❑ **Art and Design** (eg. interactive art or public installations)
- ❑ **Smart Home** (eg. devices that allow you to interact with your thermostat, locks, or lights using computers)

Researching your Topic

With your chosen topic as guidance, go online to research recent innovative computing devices within that topic. Try to find a product that you think is both innovative (in that it's attempting to solve a new problem, or an old problem in a new way) and personally interesting. Visit Code Studio for some recommended sites to kick off your research, as well as more detailed descriptions of each of the topics. As you do your research, consider checking out some of the crowdfunding sites (such as Kickstarter or Indiegogo) to find products that haven't even been released yet!

Use the space below to record notes about interesting products you find, patterns that you're seeing, or problems within your chosen topic that people are trying to address.

Research Notes

- Wearable technology isn't very affordable.
- Tech has to small, to fit inside the devices.
- To measure blood pressure, upper arm is the right place, this has made wearable tech that measure blood pressure difficult to create.
- Wearable technology should be comfortable. (Microsoft band failed because of this.)

An Innovative Solution

Based on the research your group did on the last page, select **one** of the devices you found to focus on. Answer the following questions for your chosen device.

You may need to head back online to gather more details about your chosen device.

What Problem Does it Solve?

This is probably the main sales pitch of the product - why do the creators think this is useful?

The FitBit Charge is a watch, used to monitor the wearer's steps, distance walked, calories burned, floors climbed, active minutes, and the user's sleep. This product is designed to help athletes and other people who want to be active monitor their workouts.

What Is Innovative About It?

What makes this device different or better than other solutions out there?
The Fitbit Charge is innovative, because it's a cheaper alternative to other, more expensive, smart watches, and because it gets rid of the need to input your workout data, instead it knows all your data already.

How Do You Interact With It?

Focusing on the Input and Output elements of our model for a computer, how does this device take input from the user, and how does it display output? Try to be as specific as possible.
The Fitbit Charge contains a display. To interact with this display, you press various buttons to view different screens, and to input data, and start timers.

How Could You Improve It?

What are some changes that could make this device better? Are there common complaints, or clear issues that you might be able to address?
To improve this device, I could include data on the user's body temperature, to determine if they have a fever, data on the user's heart rate, data on the user's blood sugar, respiratory rate, menstrual cycle (if applicable), and weight. I could also include a notification system, which would mean that the device would remind you to take your pills, drink water, sleep, and eat. I could also include an alert system, which tells the user when their body temperature is too high, when their heart rate is too fast or too slow, when their blood sugar is too low or too high, when their respiratory rate is too high or low, and when their menstrual cycle is about to begin.

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PROJECT CALENDAR

Project: Human Rights Prototype	**Time Frame: MARCH 25 - APRIL 26**

PROJECT WEEK FOUR: APRIL 22-26

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Notes				
3D print non functioning prototype.	Pick up 3D printed prototype.		PROTOTYPE DUE	PROTOTYPE REFLECTION DUE

PROJECT WEEK THREE: APRIL 8-12

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Notes				

Begin TinkerCad model.	Continue TinkerCad model.		Continue TinkerCad model.	INTERSESSION: NO CLASS

PROJECT WEEK TWO: APRIL 1-5

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Notes				
Continue prototype screens	Continue prototype screens		SHADOW DAY: NO CLASS	MATH STUDENTS ONLY

PROJECT WEEK ONE: MARCH 25-29

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Notes				

			Begin designing prototype screens.	Continue designing prototype screens.

Innovative Design Presentation

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Innovative Prototype Presentation

You will prepare a two minute presentation in which you will describe your prototype, how it addresses your problem, and what kind of feedback you need. Please answer the questions below in preparation.

1. What Human Right are you addressing with your prototype?
   My prototype addresses the right to life.
2. What is the specific problem that your solution (prototype) will solve?
   My prototype will help prevent health issues.
3. What has been done already to address the problem (what did you research show)?
   My product is not the first smartwatch, but most other smartwatches address fitness, and weight related issues, while my smartwatch is focused on vitals, and keeping them in check.
4. How will your prototype help solve or improve the problem?
   My prototype is a smartwatch that will improve the problem, by letting users take their health into their own hands, and will allow them to monitor their vitals from home. It will keep their vitals in check, by notifying the user when their vitals reach unhealthy levels. It will also allow the user to monitoring menstrual cycles, and their sleep patterns.
5. What specific feedback from your classmates and community members would you like

Feedback:

Q1: Who is the target audience?

Q2: How would you get funding

A1: My target audience is millenials and Gen x.

A2: I donot know how. I would receive funding. This is only a prototype, I would hope to get a grant or investors.