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Flash-E
User Manual

Abstract

The purpose of this document is to help a user and/or a future team of developers navigate our attempt at this device.

Flash-E is a wearable device that assists people in sending out a distress signal in order to get help with whatever danger they find themselves in. The design was founded with usability at its core, with a very simple 1 step functionality that allows anyone to use it. It comes with a companion app that helps the user control the details of the distress signal sent out by the system.

This system is a very intuitive method of contacting help and the process we took to create it is also intuitive.

To any future teams continuing development on this, Good luck and have fun with it. We hope this manual helps you on your journey.

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Significance of the Problem

This product is to be used incase of an emergency to give people, that have encountered some mishappenings, confidence to continue their life without fear. There are alot of incidents across the world which require swift and immediate response and fail to be reported in time. Thus this watch provides a solution to this problem.

User Requirements

Our client and public in general that want to feel more safe, require this emergency call button which they can rely on at all times incase of an emergency. The user in an emergency situation usually finds it challenging to call the emergency services and talk to them in a timely manner. This device offers a solution where an emergency contact is alerted with just the touch of a button.


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What Makes Us Unique

The response time after the button is pressed is very quick as it immediately sends a signal to your phone, upon being pressed which directs a call to your emergency services and contact. This emergency call button can be on your wrist with a watch band and is also waterproof, thus can easily be carried around. It connects to your phone via bluetooth (wirelessly) and thus is still functional incase the phone is distanced from the user in a certain situation.
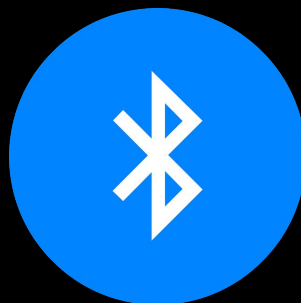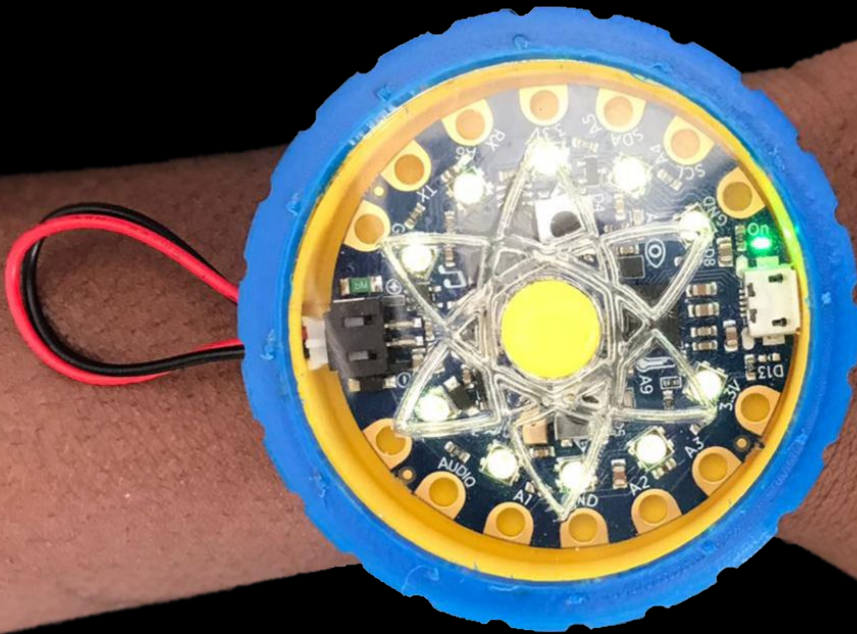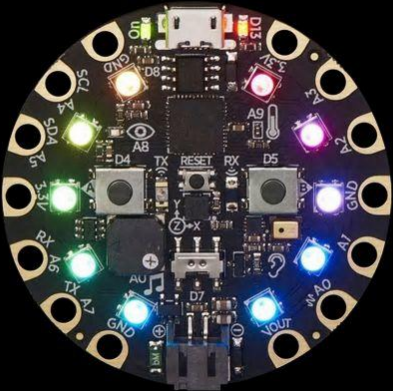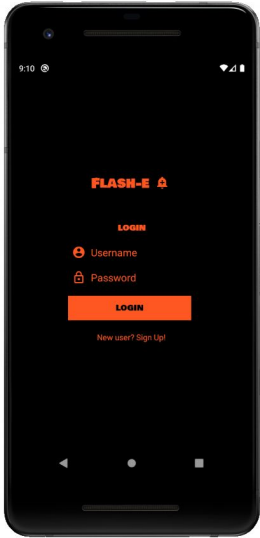
OUR PRODUCT
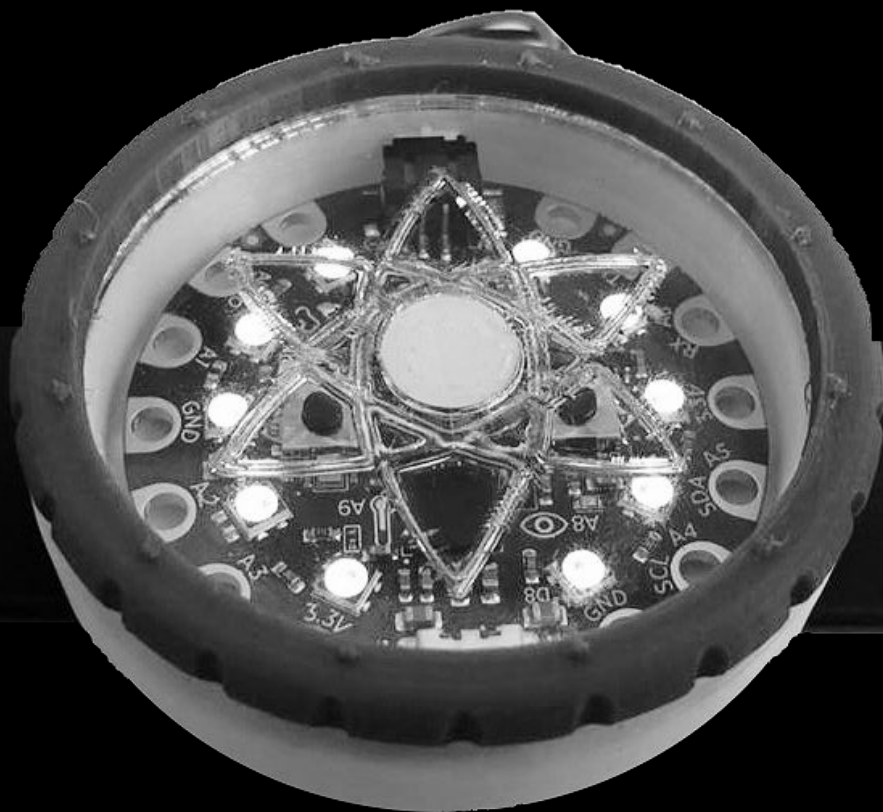
Functions and Features

Flash-E has 1 primary function, calling your emergency contact, this is achieved through pressing the button on the watch. The watch also features 10 LEDs dotted around the watch to indicate battery life.

How It Was Made

Our device can be split into three components: The circuit board, the watch frame, and the companion app

Table 1: Different Components of The Device

The Circuit Board	The Watch Frame	The Companion App
The circuit board we used is a stock CircuitPlayground BluFruit with CircuitPython flashed onto it	The frame of the watch was created through a 3D print. The team went through multiple different designs and ultimately decided on a 3D printed frame with a laser cut clear acrylic face.	The companion app was designed on Android Studio using Java as a primary language. The app was also designed with FireBase functionality to store user details.

THE WATCH
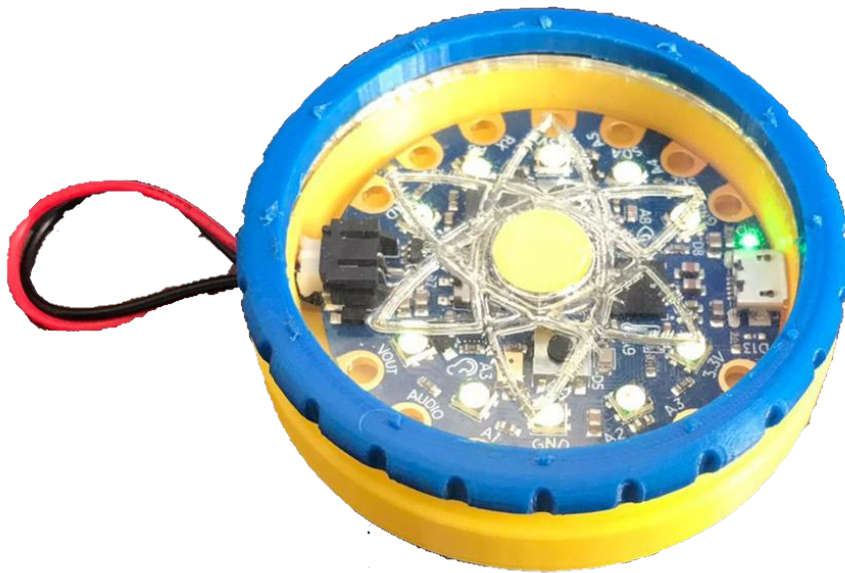
Initial Setup
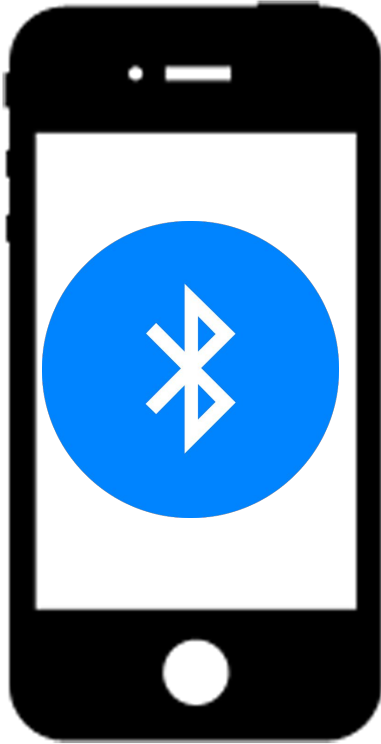
Connecting to Flash-E is as simple as pairing to any bluetooth device. The process for connecting the watch to your phone is done by going to your phone's bluetooth menu, scroll through the available devices to find Flash-E, and connect to it.

How to Use the Watch

Our watch features a very simple use case, the only thing you as a customer need to do is to press the button on the center of the watch, the device will do everything else for you.

After pressing the button, the watch sends a signal to your phone prompting it to make a remote call to an emergency contact, playing back your personalized pre recorded message.

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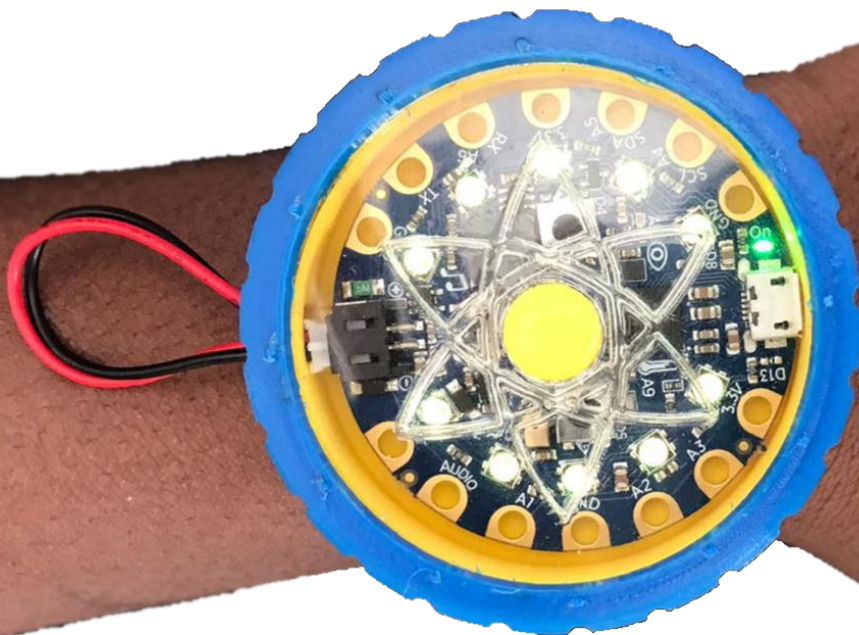
Maintenance

The watch utilizes a compact Lithium Poly-Ion Battery, making it easy for you to recharge it using the included adapter.

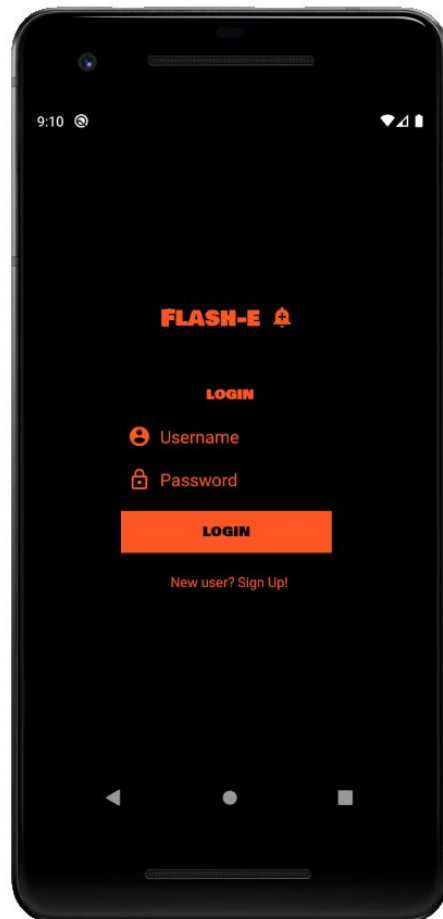The watch runs for up to 10 hours per full charge, lasting well over the length of a work day. Charging the device overnight is an optimal way to insure that the device as always ready to go when you are.

The Companion App

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Initial Setup

The companion app allows you to create a personal account and surely store useful data pertaining to you.

When the app is launched you are greeted with a login screen, simply enter your credentials.

Using the app for the first time? Just click the 'New user? Sign Up!' prompt at the bottom of the page and fill out all necessary info to create an account. Now you're all ready to go!

Remember, never share your password with anyone!

FLASH-E

LOGIN

👤 Username

🔒 Password

LOGIN

New user? Sign Up!

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Your Profile

After login or registration, you will have access to your profile.

Your profile is a hub of all important information about you such as the emergency number you would like to contact and a medical note.

To make changes to your information, simply click the edit button at the bottom of the page and click save when done.

All your data is protected and securely stored in real time on a database so you don't have to worry about remembering information if you change devices.
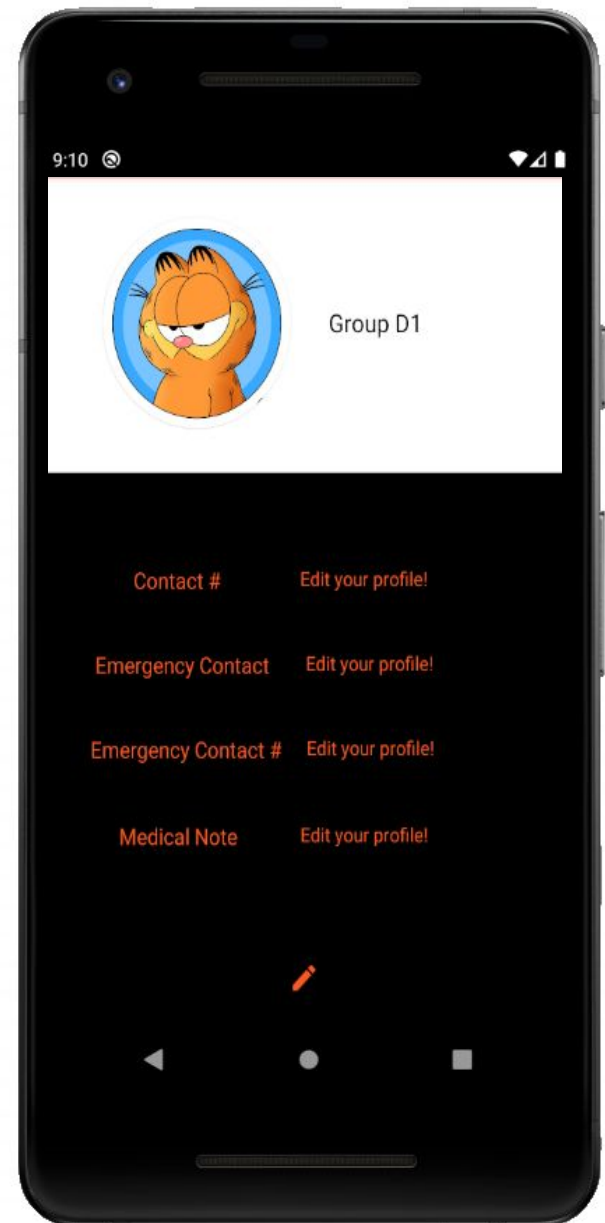
Health and Safety

- Operate the device with the correct external power source and if you are not sure of the power source required please consult your service provider.
- Follow the attached instructions to operate the device
- Using a different power source other then the provided battery is not recommended.
- There is a risk of fire and burn if the battery is used improperly
- Do not disassemble the device or damage the circuit in any way to ensure safe use.
- Keep the device away from the reach of young children to avoid swallowing.
- Avoid any sort of contact with leaking fluid incase a leak from the battery
- Do not use a damaged device without consulting a professional.
- Connecting to incorrectly grounded equipment may result in an electric shock

Troubleshooting

Table 2: Basic Troubleshooting

Problem	Solution
Incase the device is not functioning.	Recharge the battery and if this does not solve your issue please contact technical support at flash-e@gmail.com
Incase the app is not calling your emergency contact.	Contact technical support at flash-e@gmail.com
If the app crashes, ie. it displays the app interface and then returns to your phones home screen.	- Delete the app and reinstall it. - Try restarting your phone.
Incase your phone is not able to connect via bluetooth connection to the device.	Check your bluetooth connection or check our website, www.flash-e.com for the supported devices.

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Resources

All of our resources are found in this repo:GNG2101-D1-FLASH-E

The linked repo contains all of our resources for this project, including the 2 pieces that make up the assembly of the watch (in stl format) the design engraved on the face, the code that contains the companion app, and the python code that controls the circuitplayground board.

Conclusion

After 3 months in development, Flash-E is finally (almost) complete. Due to the unfortunate circumstances of the Covid-19 outbreak, we were unable to completely polish our product. However we are proud of the device we have created and we hope that it will be used because this is a device that will help many people. We thank our client for giving us this amazing opportunity to help her and we thank our course Runner Professor Mana Azarm for guiding us through this process. For anyone looking to pick up where we left off good luck and may your efforts be as fruitful as ours.

- Team D1

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Our Recommendations to a Future Team

Our team enjoyed taking on this project, it presented us with a lot of learning experiences and a lot of challenges.To whoever decides to pick this up in the future our message to you is this:

- Never underestimate the value of your teammates, always communicate.
- There will be times where your team will have to compromise their initial vision. Decide early on the core of your product and ensure that works before deciding on additional features.
- Have fun with it. The best products are born out of enjoyment and passion