

The image features a dark navy blue background. In the top-left corner, there are several parallel teal lines that form a corner-like shape, extending towards the center. In the bottom-left corner, there are more parallel teal lines, some horizontal and some diagonal, creating a stepped effect. In the bottom-right corner, there are three parallel teal lines that run diagonally upwards towards the top-right.

# BeaconWise

TRACK THE TRACKERS

# BeaconWise: A Wearable Beacon Detector

- Are ultrasound beacons in use around you?
- Study: 234 Android *Play Store* apps *always listening*!
- Signals emitted by:
  - Stores and shopping malls
  - Television ads
  - Music recordings
  - Apps!

# BeaconWise: More Beacons!

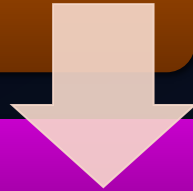
- WiFi, NFC and Bluetooth beacons
- Augmented Reality (AR)
- GPS beacons
  - Areas to avoid – crime APIs etc?
  - Geocaching
  - Beacons you choose – not advertisers

## RFduino wearables + phone ...

- Aware of other wireless services around you (WiFi, cell frequencies)
- Biofeedback from phone sensors/peripherals
- Timers and alarms
- Smartwatch-style notifications

# Android App

Microphone Input



Fast Fourier Transform



Find Patterns

The image features a dark blue background with several teal-colored geometric lines. On the left side, there are three vertical lines that bend at the bottom to form a corner-like shape. On the bottom right, there are three parallel diagonal lines extending from the bottom left towards the top right.

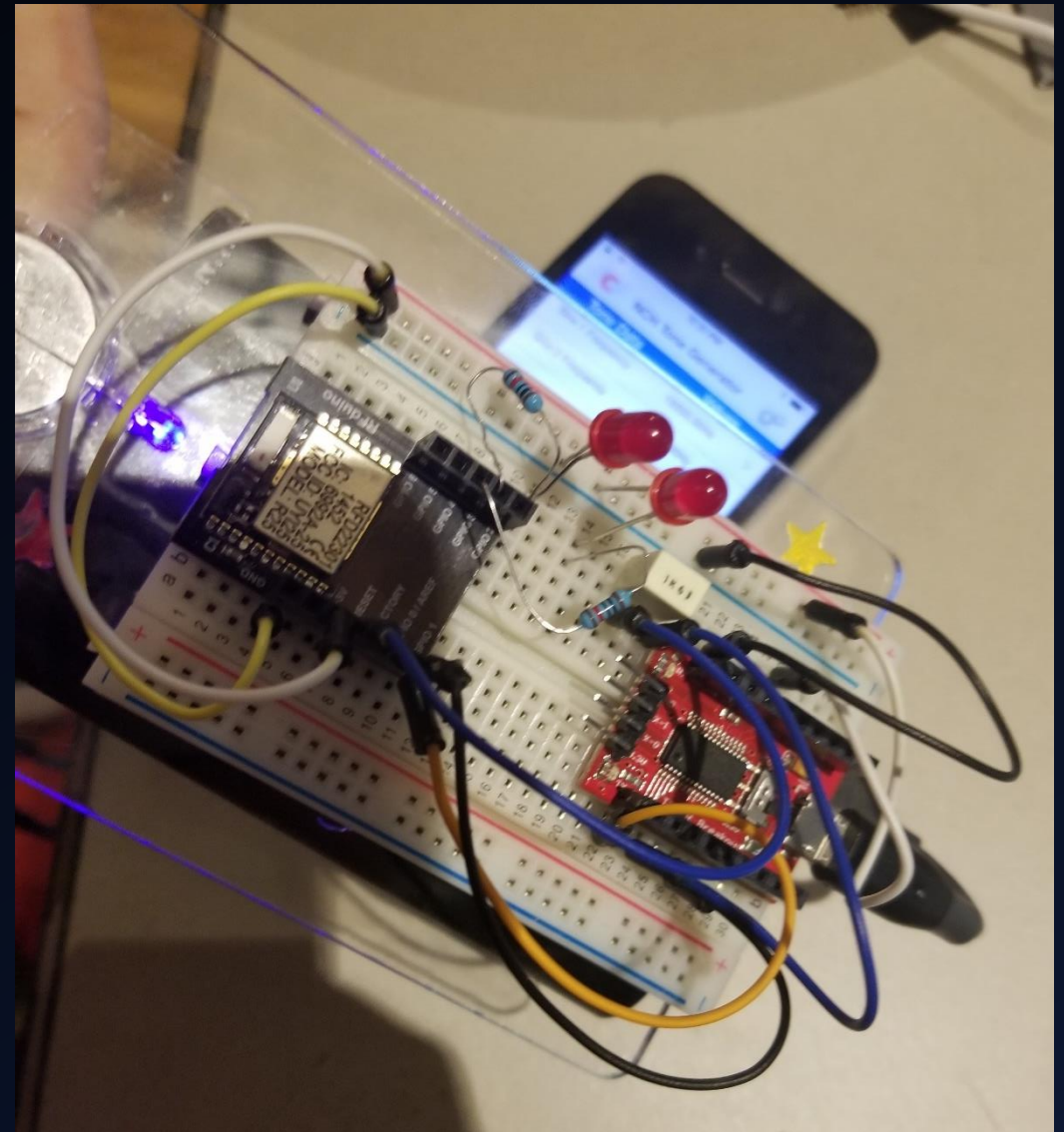
# DEMO TIME

WILL IT WORK???



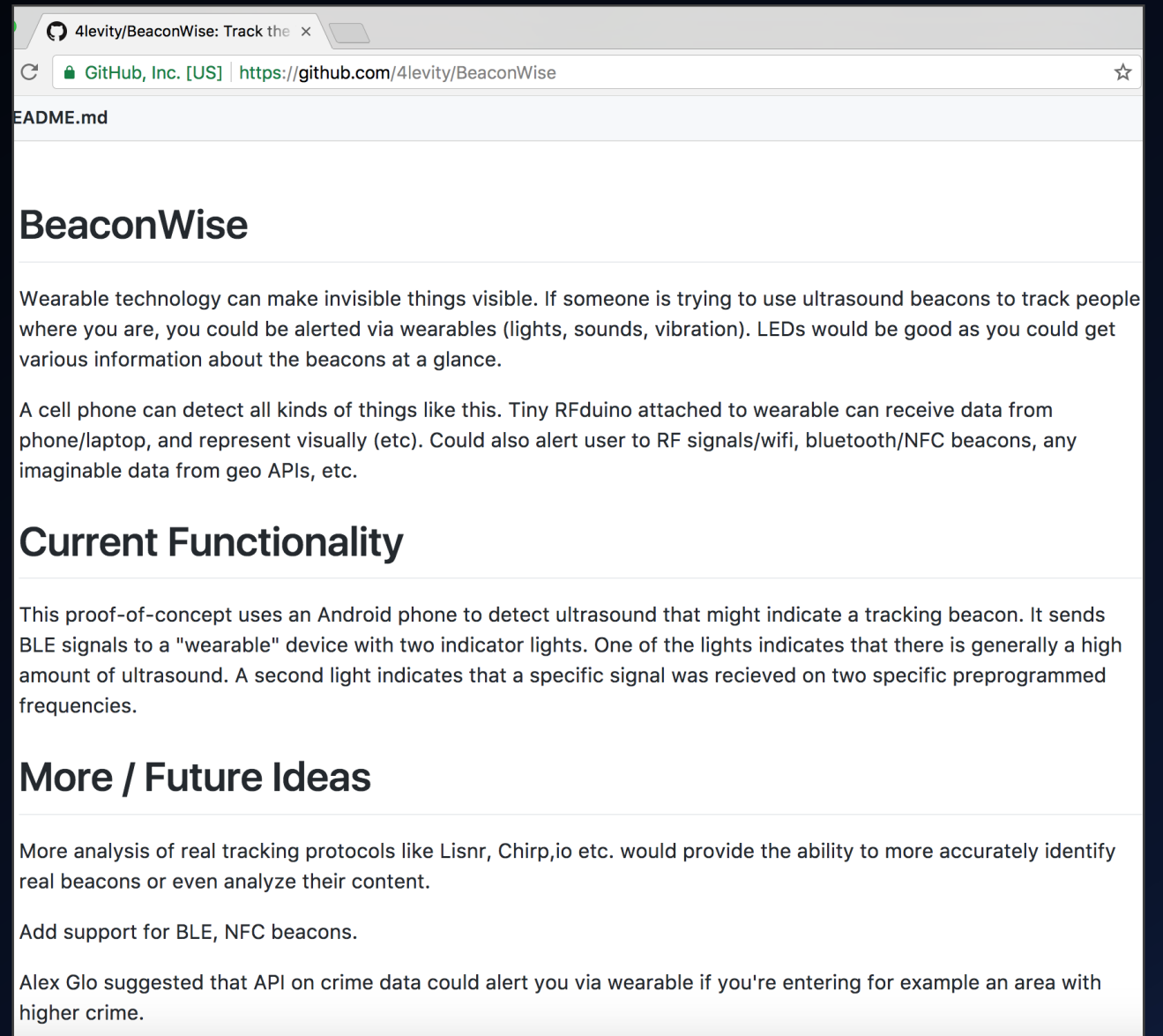
22000

DLF Scan started



FIN

<https://github.com/4levity/BeaconWise>



The screenshot shows a web browser window with the address bar displaying "https://github.com/4levity/BeaconWise". The page title is "4levity/BeaconWise: Track the". The main content area shows the repository name "BeaconWise" and a description: "Wearable technology can make invisible things visible. If someone is trying to use ultrasound beacons to track people where you are, you could be alerted via wearables (lights, sounds, vibration). LEDs would be good as you could get various information about the beacons at a glance." Below this, it says "A cell phone can detect all kinds of things like this. Tiny RFduino attached to wearable can receive data from phone/laptop, and represent visually (etc). Could also alert user to RF signals/wifi, bluetooth/NFC beacons, any imaginable data from geo APIs, etc." The next section is "Current Functionality" with the text: "This proof-of-concept uses an Android phone to detect ultrasound that might indicate a tracking beacon. It sends BLE signals to a 'wearable' device with two indicator lights. One of the lights indicates that there is generally a high amount of ultrasound. A second light indicates that a specific signal was recieved on two specific preprogrammed frequencies." The final section is "More / Future Ideas" with the text: "More analysis of real tracking protocols like Lisnr, Chirp,io etc. would provide the ability to more accurately identify real beacons or even analyze their content." Below this, it says "Add support for BLE, NFC beacons." and "Alex Glo suggested that API on crime data could alert you via wearable if you're entering for example an area with higher crime."

4levity/BeaconWise: Track the

GitHub, Inc. [US] <https://github.com/4levity/BeaconWise>

EADME.md

## BeaconWise

Wearable technology can make invisible things visible. If someone is trying to use ultrasound beacons to track people where you are, you could be alerted via wearables (lights, sounds, vibration). LEDs would be good as you could get various information about the beacons at a glance.

A cell phone can detect all kinds of things like this. Tiny RFduino attached to wearable can receive data from phone/laptop, and represent visually (etc). Could also alert user to RF signals/wifi, bluetooth/NFC beacons, any imaginable data from geo APIs, etc.

## Current Functionality

This proof-of-concept uses an Android phone to detect ultrasound that might indicate a tracking beacon. It sends BLE signals to a "wearable" device with two indicator lights. One of the lights indicates that there is generally a high amount of ultrasound. A second light indicates that a specific signal was recieved on two specific preprogrammed frequencies.

## More / Future Ideas

More analysis of real tracking protocols like Lisnr, Chirp,io etc. would provide the ability to more accurately identify real beacons or even analyze their content.

Add support for BLE, NFC beacons.

Alex Glo suggested that API on crime data could alert you via wearable if you're entering for example an area with higher crime.