

HotSpot: A Social Distancing Helper

Jagath Jai Kumar



HotSpot

HotSpot is a platform consisting of 3 elements:

- **An android application**
 - For users to see what areas around them have had the most human presence in the past day
- **A server backend**
 - To support collection of location data
- **A web application**
 - For public health officials to see which areas are the most active throughout the day

HotSpot - Android

HotSpot Android is focused on showing users what areas around them have been “HotSpots” in the past day

- HotSpot Android silently collects anonymized GPS location data and saves it to the server backend
- Users can see the heatmap to know which locations are potentially dangerous
- Users can see how well they have been social distancing with the “Score” buttons

HotSpot - Android

Technical Advantages

- Users can check in with the app to determine which store to visit based on traffic in the past day
- It is completely anonymous - nobody knows exactly who is where at any given time
- It requires no login or personal information
- It is a light background service and saves no data locally - all computations are done with HotSpot Server

HotSpot - Android

Let's see this in action!

HotSpot - Server

HotSpot Server is the backend for data storage and score calculation

- The server provides multiple hooks for writing location data
- Here's where the magic happens: I have devised a way to calculate a travel score and an interaction score based on the location data

HotSpot - Server

Travel Score

- How far have you been traveling in the past day? Have you potentially spread germs very far?
- Score from 1-10, 10 being completely stationary

HotSpot - Server

Interaction Score

- How many places were you at where there were other people at similar times?
- Score from 1-10, 10 meaning you have interacted with no one

HotSpot - Server

Let's see some code!

HotSpot - PHA

HotSpot Public Health App is a web application built on HotSpot server that allows health officials to see where people have been gathering in the past day

- Currently, HotSpot PHA is very similar to HotSpot Android - both have a heatmap showing HotSpots
- By using the HotSpot Server API, we can easily expand this to allow officials to track the spread of germs very efficiently

HotSpot - PHA

Time for another demo!

HotSpot Conclusions

HotSpot was designed for both individual users and public health officials.

- The Android app, Server, and PHA are all part of the HotSpot platform
- We can easily add features to all three fronts by upgrading the Server API

One future feature is to provide recommendations on stores to visit and places to avoid

Open Source

HotSpot is completely open source - please contribute at:

<https://github.com/jagath-jaikumar/COVID-19-APP>

Thank you