

SmartNetwork: Vision Statement

Team Name: SmartNet

Team Members:

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About the project:

SmartNetwork is a mobile application that helps ISP technicians and/or residential users strategically setup Wi-Fi routers for maximum coverage. Users can generate a heatmap that displays the signal strength from the router to any points in the building. In addition, there is a Wi-Fi speed analyzer and video stream analyzer which users can use to test the connection from wherever they are.

What problem the project is solving:

Wi-Fi connections can sometimes be very fickle. One place in the building may get excellent signal, while another spot a few meters away gets terrible reception. With this app, users can quickly get an overview idea of their router's coverage, which they can use to strategically place their routers and/or extenders in optimal areas. ISPs' can also use this information on a broader scale and see how their routers are performing across neighborhoods, towns, cities, etc.

How the problem is solved today:

Many home users try to troubleshoot their router and often times they misconfigured some of the settings. This in turn makes it harder for technicians to know what exactly has been changed. Because of this, technicians are left with trial and error attempts.

Why the problem is important:

Most homeowners/consumers should have Wi-Fi accessibility at all times, since they are paying for the service. Technicians should be able to discern the weaker areas quickly and come up with a viable solution. SmartNetwork will provide an insight of where the problems might be when the Wi-Fi experiences problems. In addition, with the growth of video streaming, adding a video stream analyzer to our app will provide additional statistics for technicians and homeowners to know which areas of the home require extenders for a better internet experience.

Identify the outcome of the project:

The app provides statistical information such as a heatmap visualization, Wi-Fi speed test, and Wi-Fi connect. It will also provide a video stream analyzer to further test signal quality. Heat maps can likewise be saved for future comparison.

Project milestones:

- Improve the current heat map by combining each pin into one, where the router's position is 100%
- Add a way to detect the limits of the wifi and create a visual barrier/wall on the heat map
- Have two team members learn Ruby for the backend of the project
- Make the backend code more defensive and flexible
- Porting VSA (video stream analyzer) to run on the android platform.
- Add a GUI component to VSA where the statistics of the video stream are displayed
- Add a captive portal GUI page when users connect to the router's network to aid in setup/installation.
- Create a training video on how to use the app and its features
- Determine if mesh extender support is needed (stretch goal)
- Assist in installation process of mesh, such as determining best location (stretch goal)
- Prepare app for production so that it can be uploaded to the Android App store

Implementation platform and technologies:

- Smart/RG routers
- Android SDK
- Ruby for backend

Overview to achieve the milestones:

- We will contact each other through Slack
- Individual tasks will be uploaded to Trello
- Daily scrum meetings to pick task uploaded to Trello
- We will work off the repo and track issues from GitHub
- Weekly meetings with our mentor