**Vision Statement**

Team SmartRG

**Project Title**

SmartNetwork

**Team Members**

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**Project Description**

A mobile application that will display useful statistics and information about your home’s wifi and internet connection. In addition, our app will look to provide other useful innovations like a heat map depicting the strength of your wifi connection in each room of your home.

**What problem(s) does the project solve?**

* Technicians installing home routers need a tool to maximize Wifi range and solve network connectivity problems.
* At home users can check where their wifi signal is strongest/weakest so they know where to put wifi extenders/repeaters to maximize their home’s wifi capabilities.
* Determining why your internet is being slow

**Why is this problem important?**

* Most people want their home wifi to work seamlessly without any problems or issues
* Most people do not know why their internet is not working or being slow

**How is the problem solved today?**

* Users have to call in technicians from their internet service providers to physically come to your home and analyze the issue.
* Users try and figure out the problem themselves.

**Outcome of the project**

Our end goal is to provide a mobile application that allows technicians, and possibly residential users, to test network connectivity across different areas of the home and display network data in order to solve potential connectivity problems.

**Initial project milestones**

* Develop a mobile app (Android) that collects and displays data from a home router
* Allow it to run speed tests and store data in a database on a cloud server
* Be able to display a heat map of Wifi network strength across different areas of the home
* Display statistics and analysis of over-the-top video streams (vstb)

**How do you plan to articulate and design a solution?**

**Implementation**

* Android SDK, and possibly NDK as well
* iOS
* MySQL database
* Iperf3, to get network statistics and information
* SmartRG routers

**Overview the process model you will employ to achieve the milestones**

* Daily scrum meetings
* Weekly (or more frequently) meetings with mentors
* Google Drive for document storage
* Slack/Google Group for team communication
* Github for version control
* Agile workflow process of 2 week sprints
* Original Idea: Map of Wifi hotspots and Speed test (mobile app)
* Our Ideas that can be added onto original:
  + Point user in direction of stronger signal
  + Get info about users connected to router?
  + Analyze network traffic
  + Mobile app to monitor/filter user activity
* IoT
  + Track sensor information anywhere around the world.(ex: track movement of people and record on a map)
* Network security
  + Create a man in the middle attack.
* Network traffic analyzer
  + Analyze and categorize non-public data that apps send to their server on mobile phones

**Vision Statement Outline**

* Requirements: https://capstone.cs.ucsb.edu/cs189a/lectures/vision.pdf
* Project Title: SmartNetwork
* What problem is the project solving?
  + Technicians installing home routers need a tool to maximize Wifi range and solve network connectivity problems
* Why is the problem important?
  + Users need to have access to internet without problems
* How the problem is solved today?
  + Users have to call in technicians or try to figure out their own solutions to poor network connectivity
* Identify the outcome of the project
  + A mobile application that allows technicians, and possibly residential users, to test network connectivity across different areas of the home and display network data in order to solve potential connectivity problems
* Initial project milestones: specification, design, prototyping
  + Mobile app (Android) that gets data from a home router
  + Run speed tests and store data in a database on a cloud server
  + Display heat map of Wifi network strength across different areas of the home
  + Display statistics and analysis of over-the-top video streams (vstb)
* Implementation technologies
  + Android
  + iOS
  + MySQL database
  + IPERF3 - get network stats
  + SmartRG routers
  + May need to use Android NDK
* Process model steps
  + Base project: Display network statistics and create heat map
  + Additional features in later sprints:
    - Analyzing data from users/devices connected to the network
    - Possibly filter content if identification of different streams can be acheived