

MICHIGAN STATE
UNIVERSITY

Alpha Presentation

Dynamic Spectrum Access for Networked Radios

The Capstone Experience

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*From Students...
...to Professionals*

Project Overview

- Create a policy containing:
 - Frequency range, tuning bandwidth, # of segments, power, sample bandwidth, segment bandwidth, power delta, base output power, segment spacing
- Retrieve radio data
- Analyze and report recommendations
- Send chosen recommendation to radio

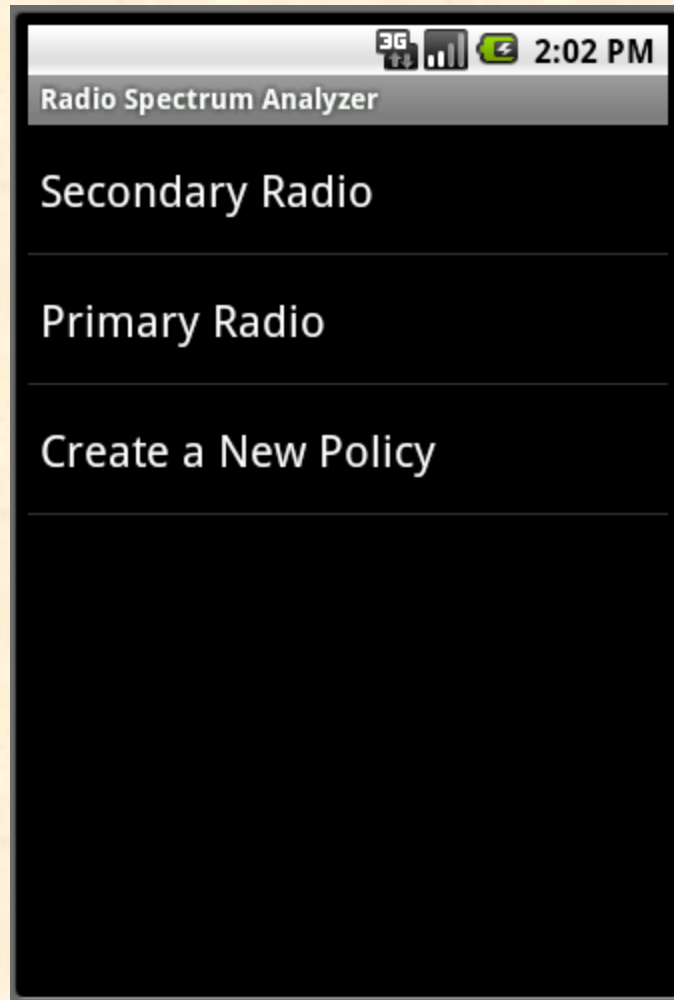


System Architecture

- Hardware
 - Network enabled radio
 - Android OS phone
- Software
 - NDK in C
 - Android SDK in Java
 - SQLite in Java



Policy Selection



Policy Create/Edit

Radio Spectrum Analyzer

Creating a new Policy

Policy Name:

Minimum Sampling Frequency (500 - 3000 MHz):

Maximum Sampling Frequency (500 - 3000 MHz):

Tuning Bandwidth (10 - 100 MHz):

Number of Segments (1 - 12):

Radio Spectrum Analyzer

Segment Bandwidth (0.5-5.0):

Power Delta (0.01-0.99):

Base Power (-100.0-40):

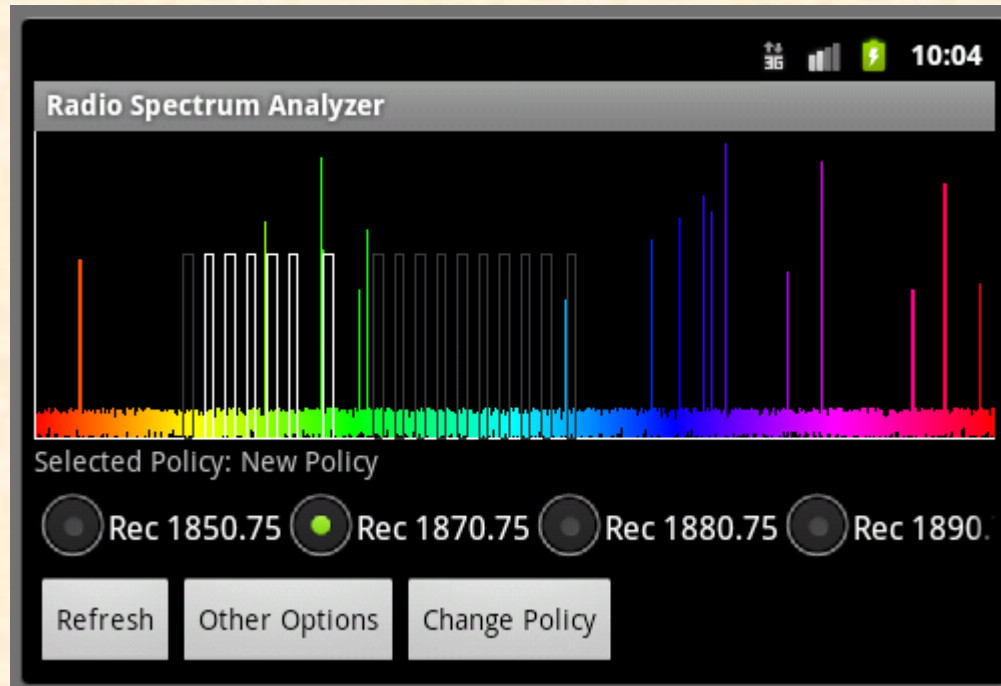
Segment Spacing (0.1-1.5):

Create/Update Policy

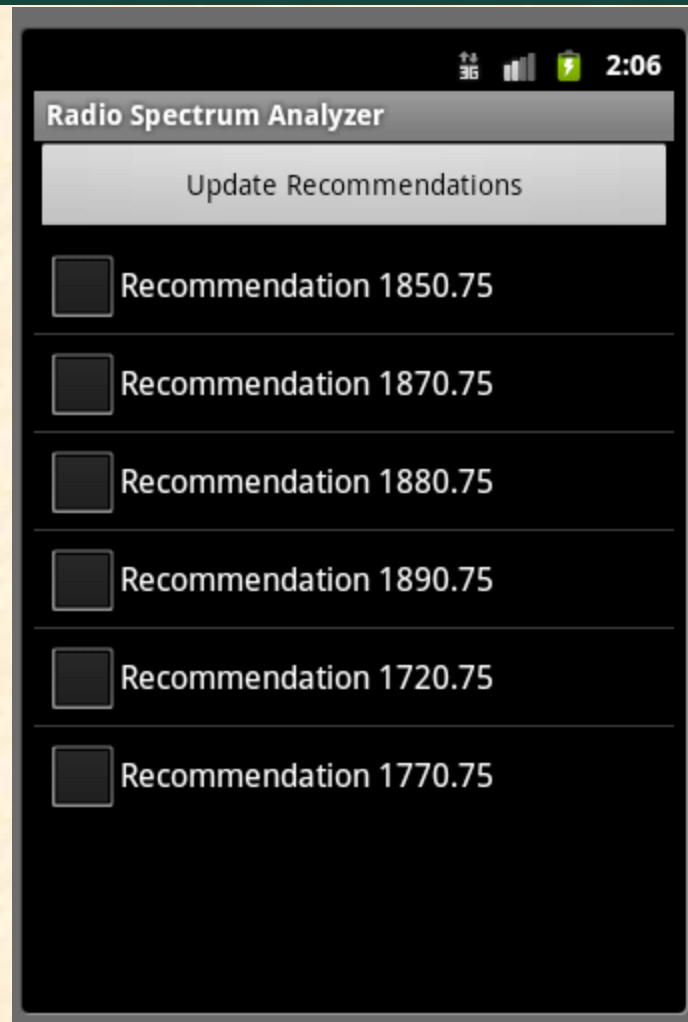
Discard Policy



Spectrum View



Choose Recommendation



What's left to do?

- Port tcl networking code
- Improve graph usability and speed
- Improve recommendation algorithm
- EZ Connect
- Laptop command line version

