

11/20/22

## EENG425 Class Demo

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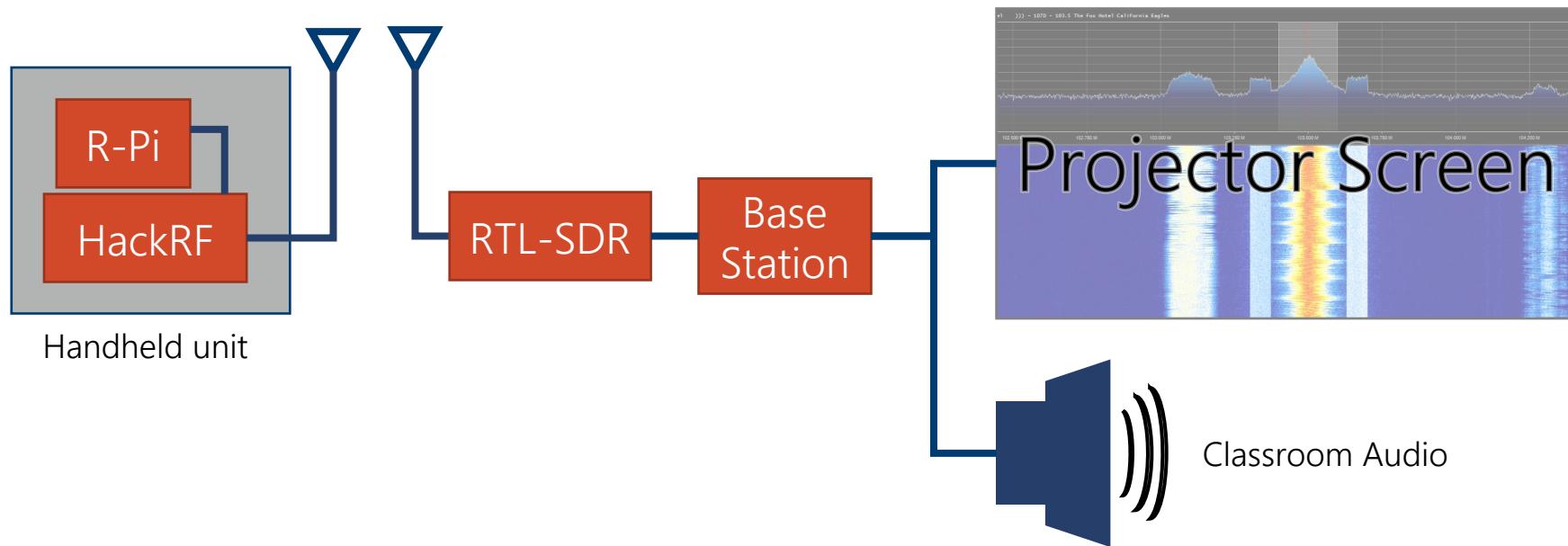
# Outline

- Project Overview
- Current Progress
- Proposed Setup Options
  - Mobile Receiver
  - Laptop Receiver
- Assembly of Display
  - Challenge
- Conclusion/Questions



# Project Overview

- The goal is to create an in-class demo for the antennas class that demonstrates the effectiveness of antennas according to their design, distance, polarization and more.

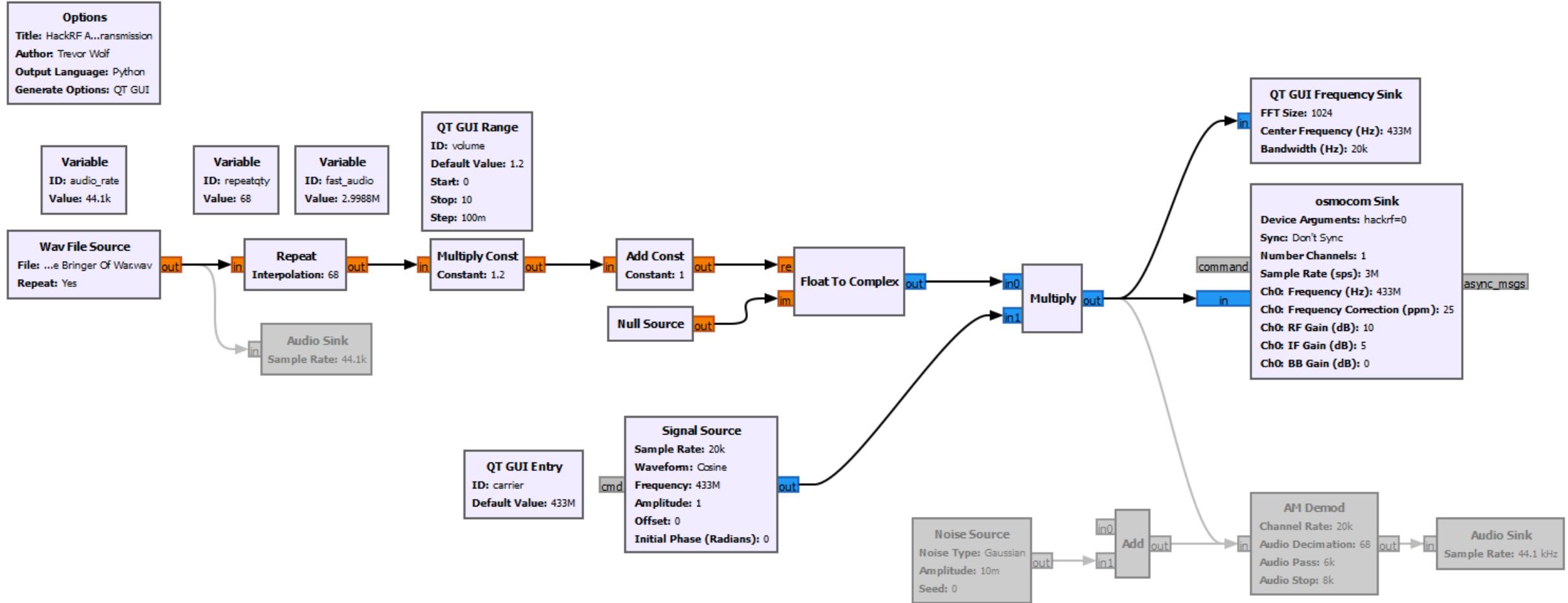


# Progress

- AM Audio Transmission is complete
- GNURadio loads and transmits a preset audio file when run
- Transmit frequency and relative volume can be adjusted on the fly
- Optional 5V amplifier dramatically increases signal strength. End design should allow it to be disconnected as needed as it may be too powerful to properly show signal drop off in some applications
- Design consideration: Frequency range. RTL-SDR is current receiver, has frequency range of 24 -1766Mhz. It can be swapped with a HackRF for increased frequency range.



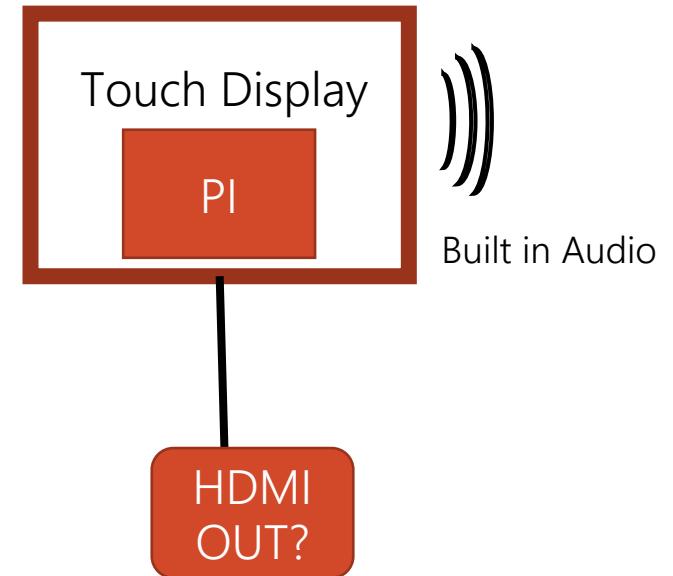
# GNURadio



# First Option

## Mobile Base Station

- Receiver is raspberry pi loaded with all necessary software
- HDMI outputs to projector screen\* (Untested)
- Least Setup option
- Pi may not be able to output to both touchscreen and projector
- Allows for demonstration without projector
- Harder to change receiver frequency



Small Scale Demonstration

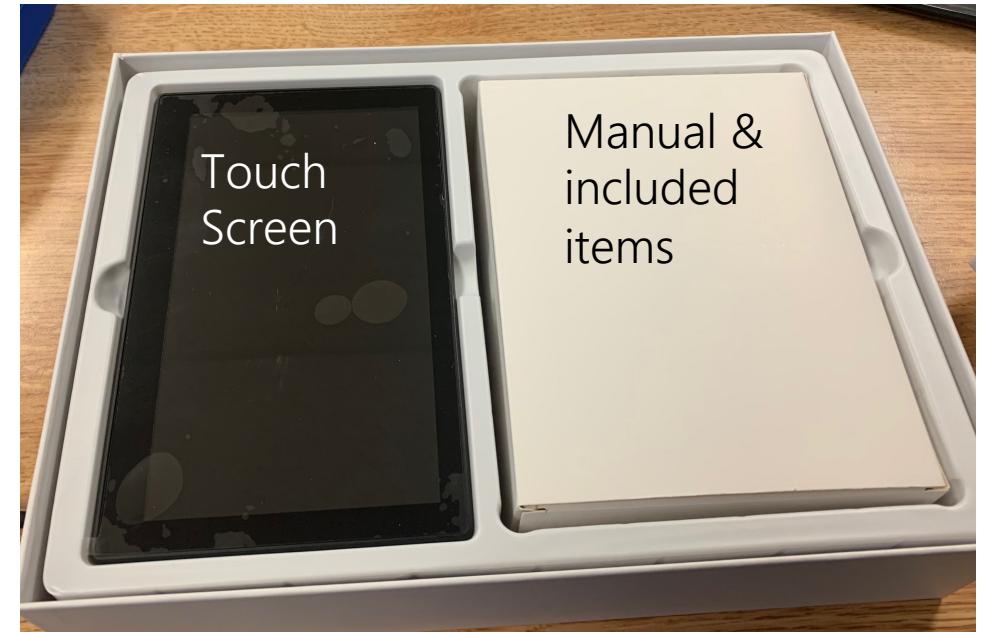
# Second Option

## Laptop Base Station

- Windows based laptop used as base station connected to RTL-SDR and projector screen
- Spectrum viewing software can be set up on a flash drive for fast setup on other devices
- Requires administrator access to computer to set up drivers
- Mouse and keyboard makes it easy to hop frequencies and change settings



# Materials - Touch Screen Display



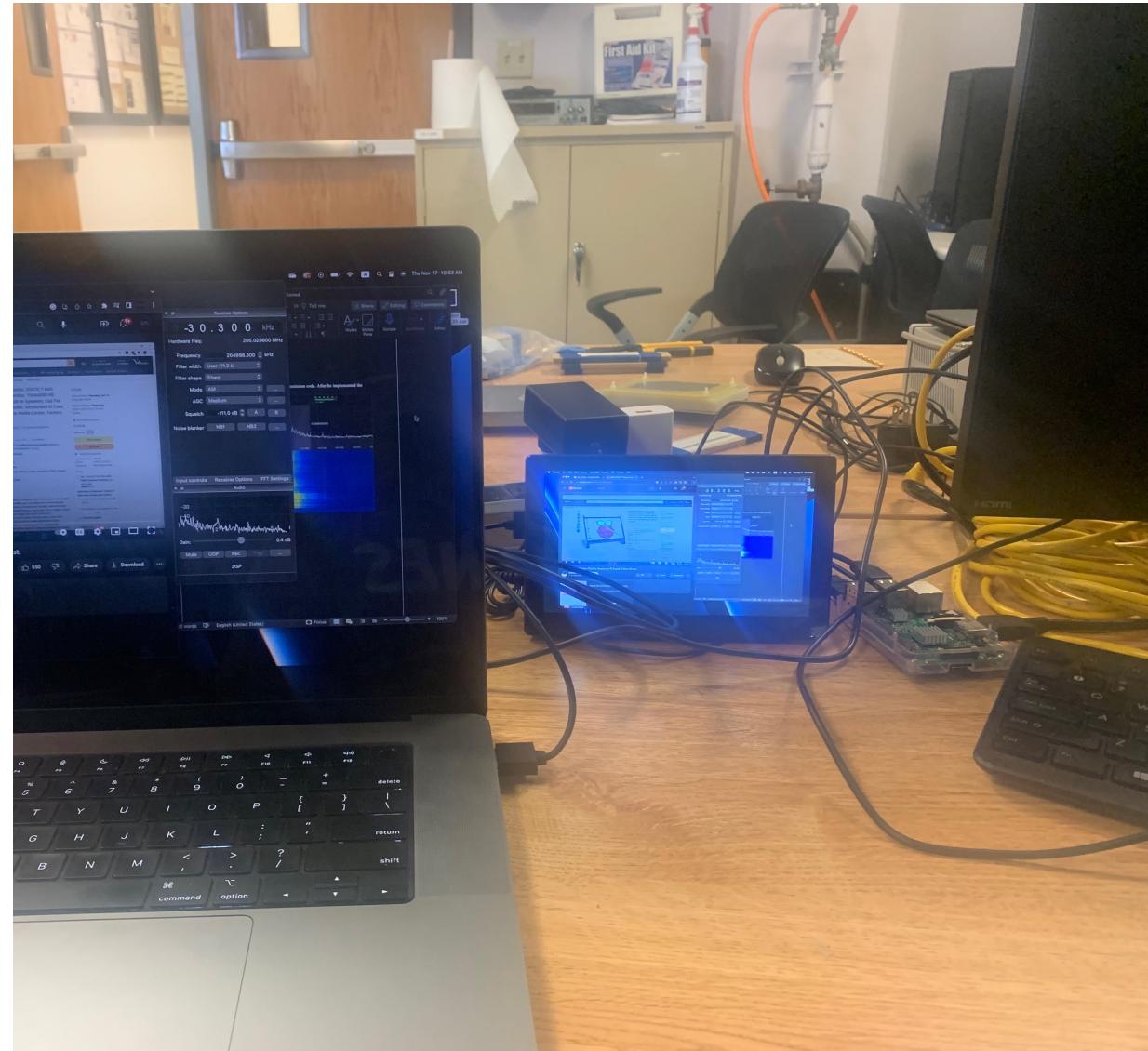
# Setting up

- Installed the PI 3 side panel and 3-pin touch screen cable.



# Touch Screen Display

- We tested the display and are concerned that we cannot output display from the touchscreen.
- Connected HDMI from computer and display was duplicated.
- We can use this for the transmitting end with no issue.



# Challenge

- Unfortunately, the raspberry pi set to deliver on Thursday the 17th has been delayed and is more likely to ship Tuesday the 22nd



# Questions?

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