# AGENDA

1. Introductions
2. RDF 101
3. The Hallucination
4. Proposed Project Structure
5. Q&A
6. Decide if we have sufficient critical mass to launch the project
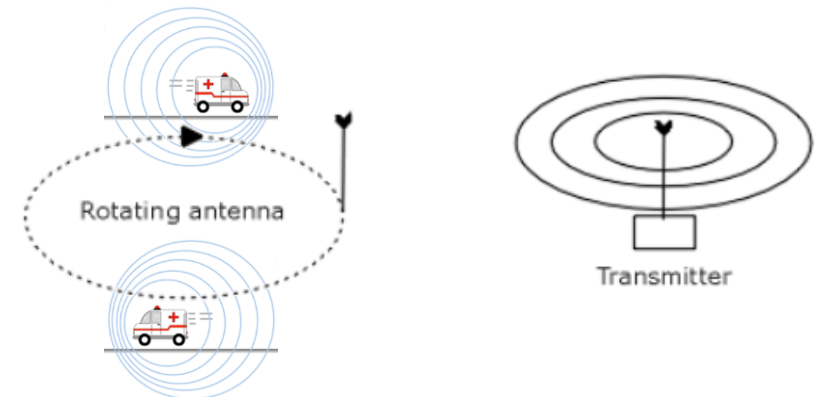
Attendees

CALL SIGN	NAME	CALL SIGN	NAME
AI6US	Brian	N5JEF	Jeff
W6SOM	Charles	KI6RT	Jon
AB4CC	Clyde	KR6MR	John Larribeau
KN6DMK	Dean	KN6HTD	Jojo
KO6TH	Greg	KK6VHH	Josh
KM6LYW	Rich	KM6YMM	Mike
K6JBA	Dan	KM6NFS	Phil

Doppler Effect

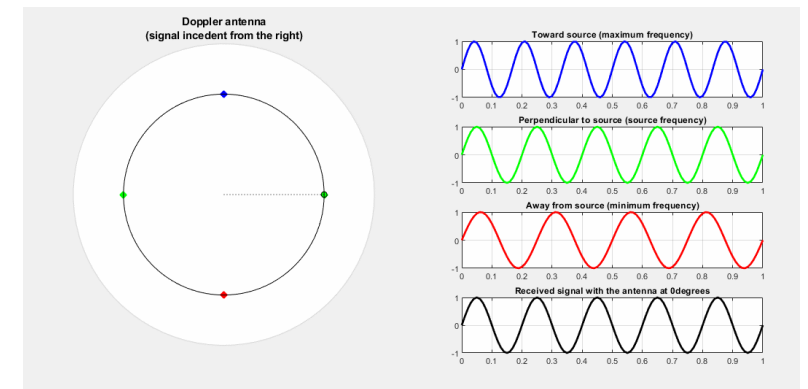- On coming siren has a
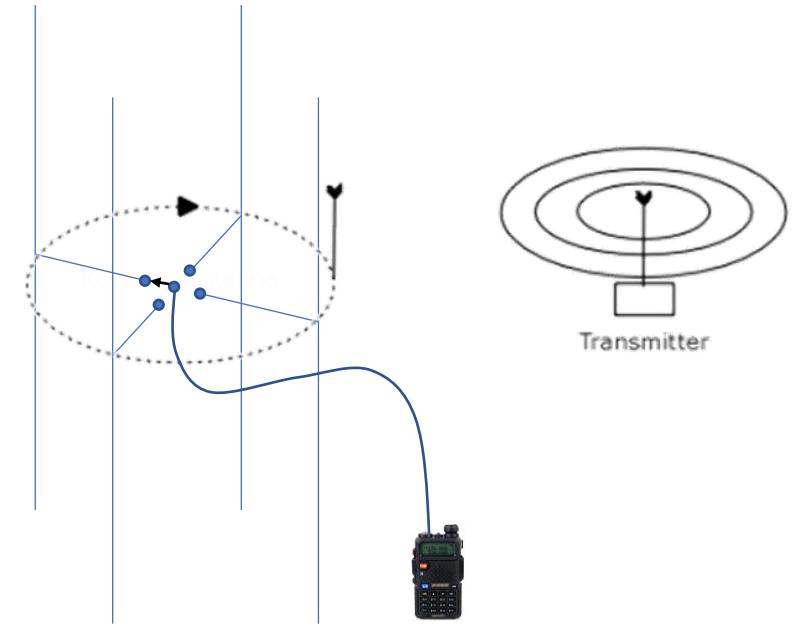 - Higher pitch approaching
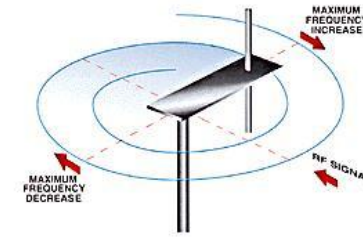 - Lower pitch after it has past
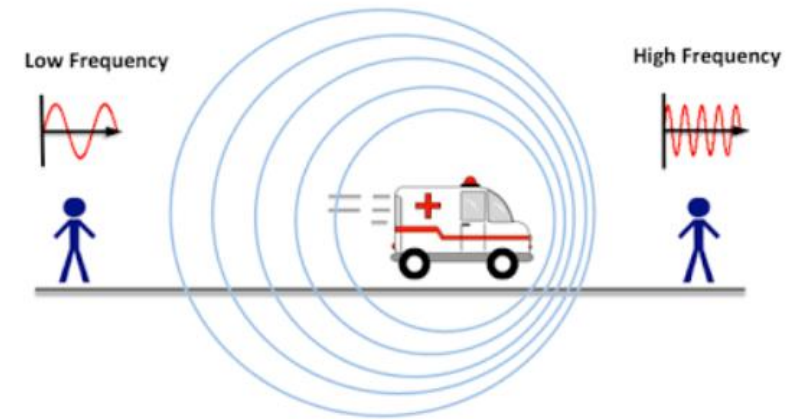
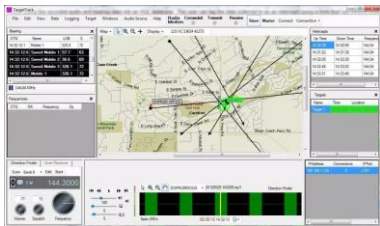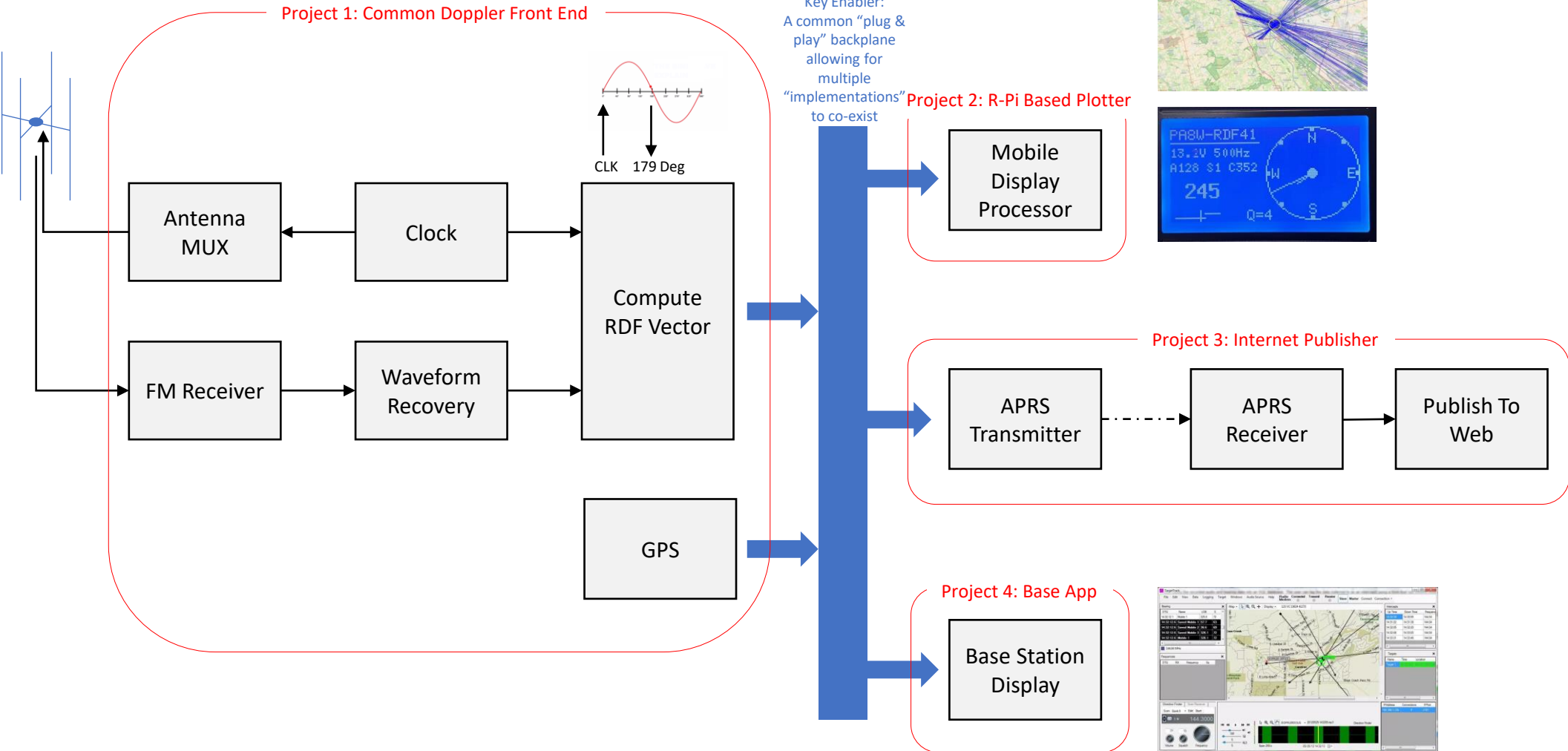- Can create a Doppler Effect by rotating an antenna

Doppler Applied To RDF

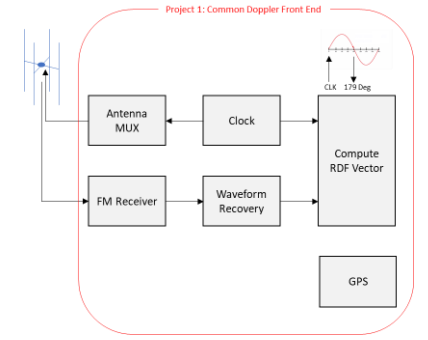- Given we are looking for a stationary transmitter we can create a Doppler effect by rotating an antenna
- Physically rotating an antenna at an RPM necessary to observe a Doppler effect is a challenge
- Fortunately, electrically rotating an antenna at 500-1000 RPM is easy to do!
  - Displaying the relative angle to the transmitter is a matter of "synchronizing" antenna rotation with the Doppler "signal" recovered

Basic Block Diagram

Project 1: Common Doppler Front End

Antenna MUX

Clock

CLK   179 Deg

Compute RDF Vector

FM Receiver

Waveform Recovery

GPS

Key Enabler:
A common "plug & play" backplane allowing for multiple "implementations" to co-exist

Project 2: R-Pi Based Plotter

Mobile Display Processor

Project 3: Internet Publisher

APRS Transmitter

APRS Receiver

Publish To Web

Project 4: Base App

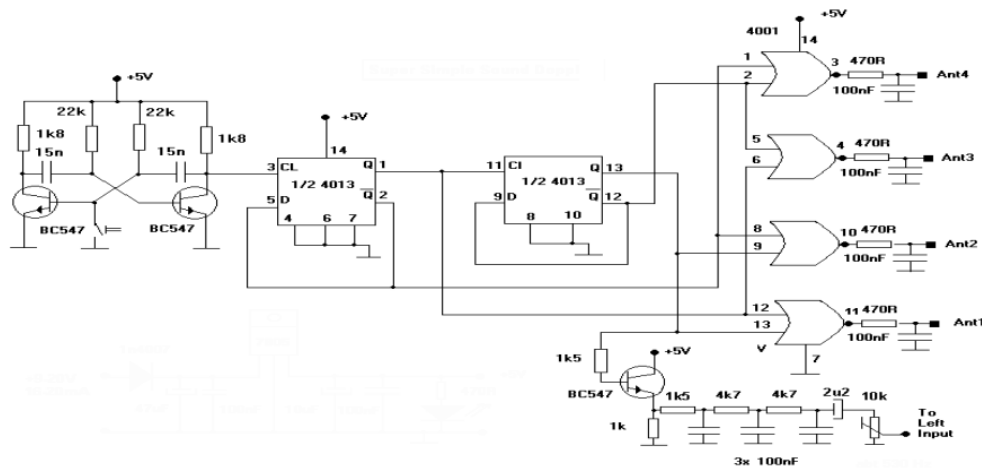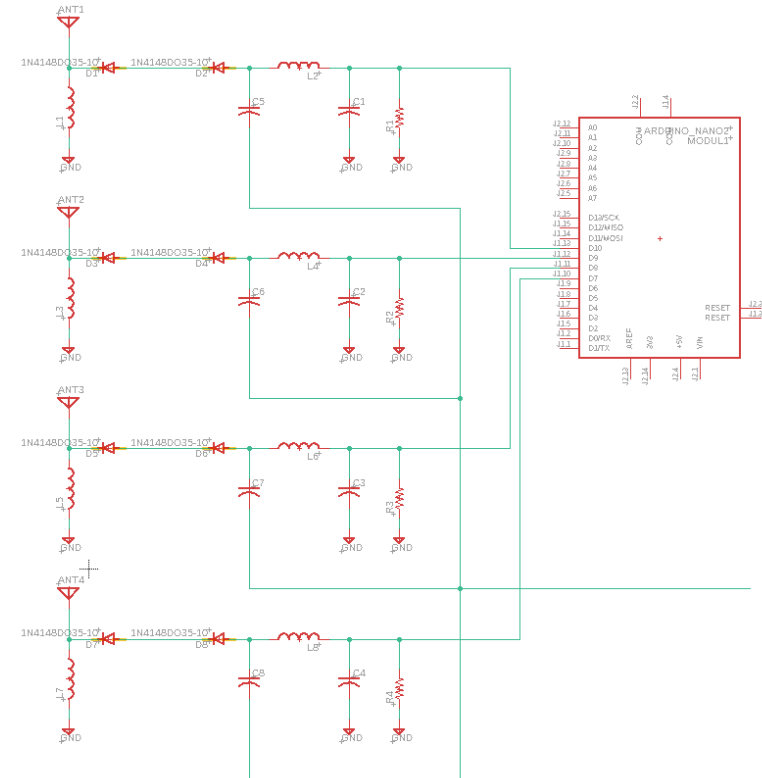Base Station Display

What if we used an Arduino…
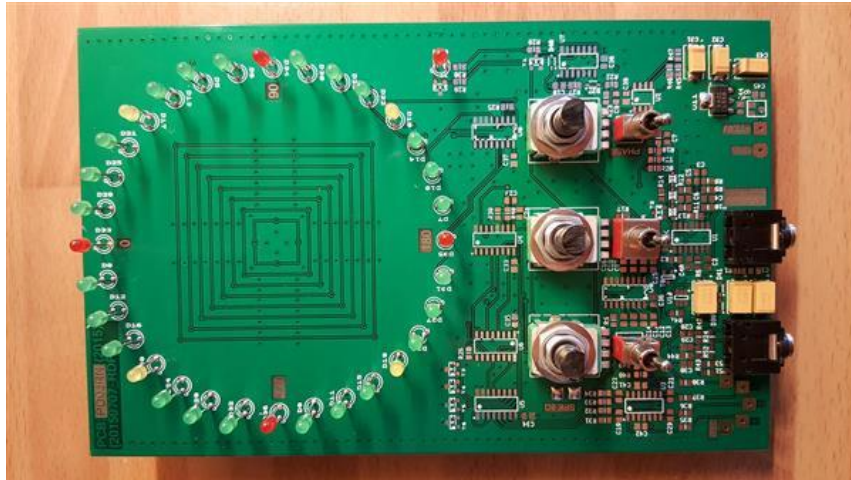
Typical Older Switcher Using Discrete
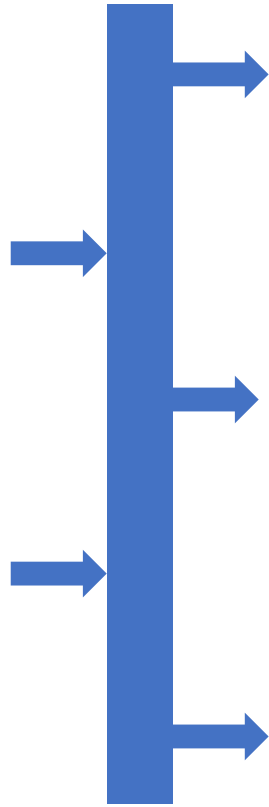
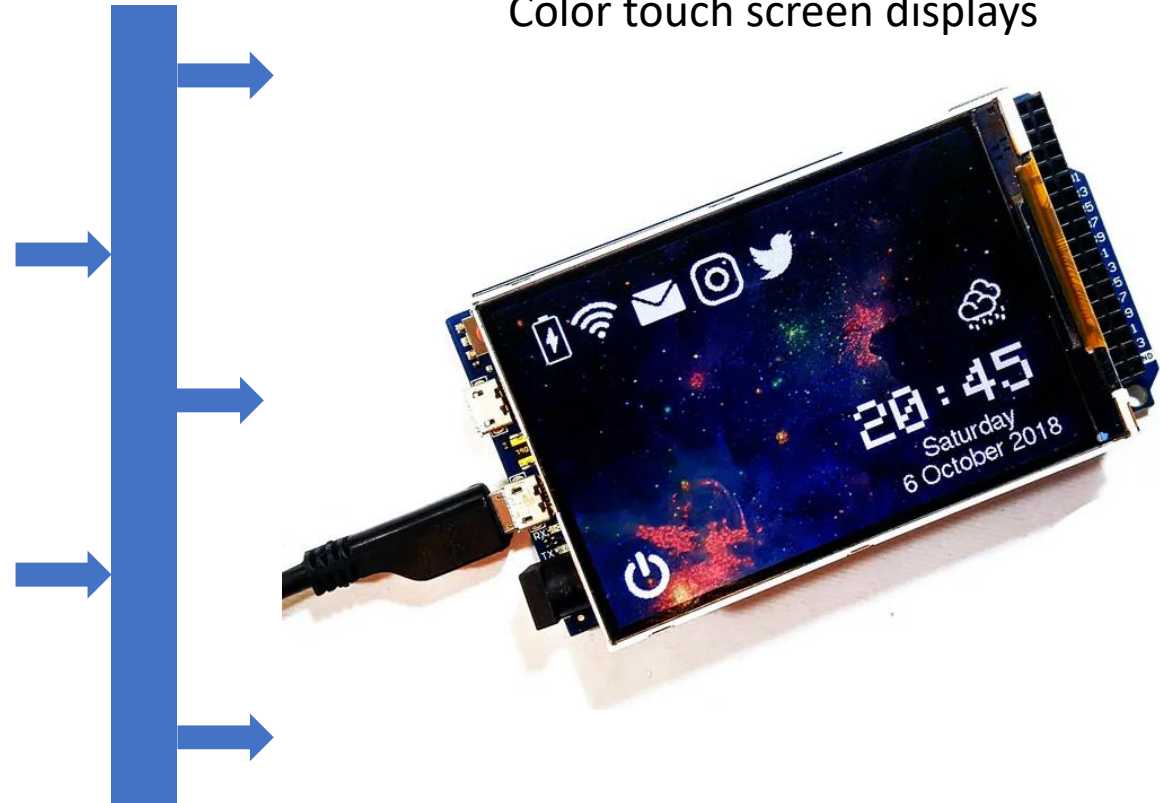Modern Approach Using Arduino or R-Pi

What if we used modern touch screen LCDs...

Typical Older LED Display

Color touch screen displays

Requirements?

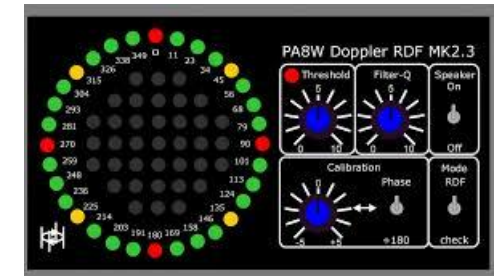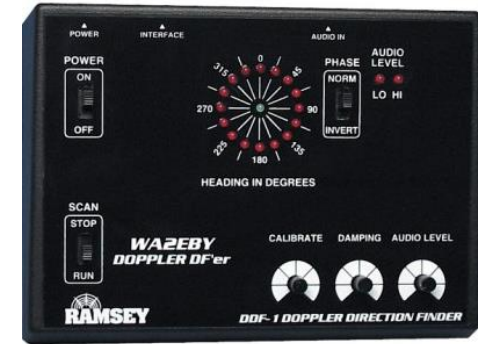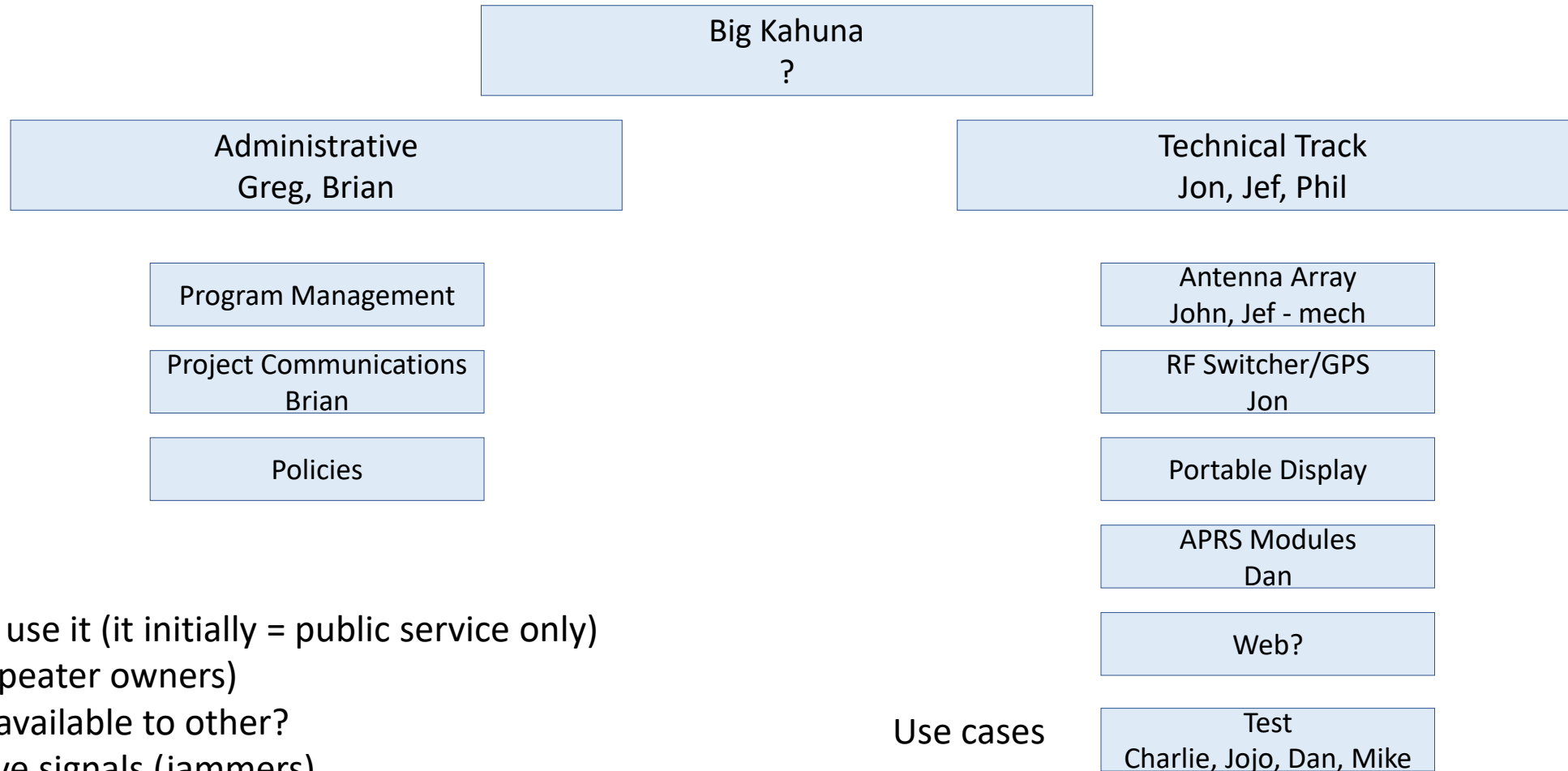| M/W	Score	Requirement
		Able to operate as a portable RDF station for "fox hunts"
		Able to operate as a fixed RDF station
		Able to operate as an APRS node (producer or consumer of RDF data)
		Able to aggregate multiple independent RDF stations into an area wide view
		Modular & extensible allowing compatible system components to interoperate
		Encourages experimentation while maintaining plug & play compatibility

Buy vs Build?

- Kits like the Ramsey RDF are cheap and are cheap

- Many great existing DIY systems but
  - Not designed to be modular
  - May be difficult to integrate into a system
  - Enhancing may be comparable to designing from ground up
  -

- If we build then how to
  - Avoid re-inventing the flat tire?
  -

Program Structure

Big Kahuna
?

Administrative
Greg, Brian

Technical Track
Jon, Jef, Phil

Program Management

Project Communications
Brian

Policies

Antenna Array
John, Jef - mech

RF Switcher/GPS
Jon

Portable Display

APRS Modules
Dan

Web?

How we use it (it initially = public service only)
Who (repeater owners)
Making available to other?
Disruptive signals (jammers)

Use cases

Test
Charlie, Jojo, Dan, Mike

Discussion

1. FAST AS POSSIBLE

2. PERF FIRST

3. WHO HAS AN RDF? — AhHA Solutions
   & antenna

4. USE FOR PUBLIC SERVICES? — JEF INVOLVED

5. other net — SDR based system $299

6. ADMIN w/ACL TO MANAGE REQUESTS

7. MANUALLY CORDINATED?

https://othernet.is/products/kerberossdr-4x-coherent-rtl-sdr
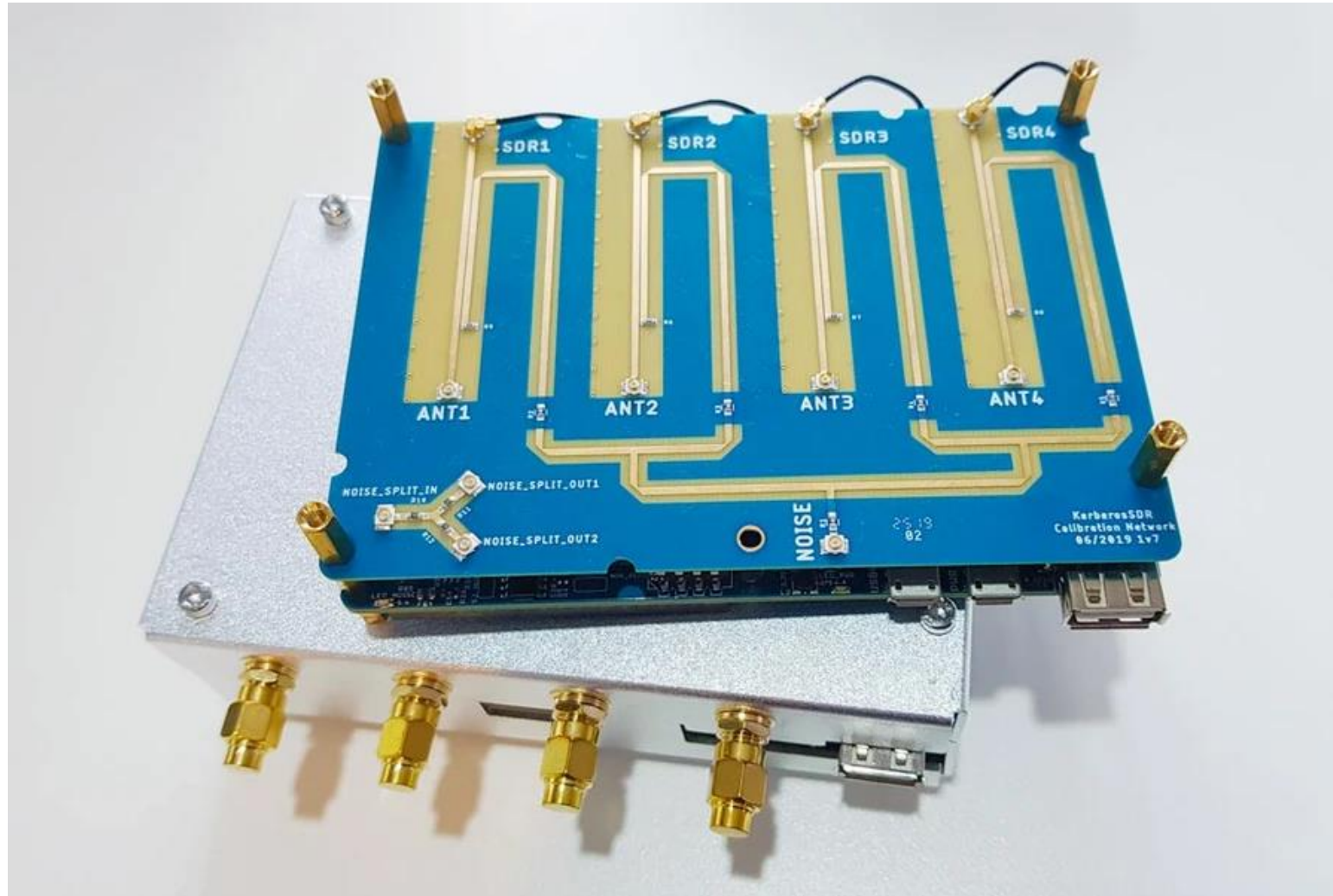
Privacy?

- Is your phone on?
- Used your computer today?
- Used a credit card?
- Been near Siri, Alexa, a smart appliance?
- Used a navigation app?
- Taken a picture on your smartphone?
- Been near a video camera?
- Spoken on any phone?
- Used a social media app?
- Used a rental car?
- Google street view or arial systems photograph your house?
- When you Google yourself do you show up?
- Your city use persistent surveillance systems?
- How would you know if you were being tracked…