Meeting with Dr. Daniels Feb. 4 2020

Documenting requirements/use cases is not a waste of time!

What are the options for an ad-hoc network? What protocols, etc.

MAC Protocol - just ad-hoc wifi, other components in this space?

Run IP over this, stream TCP/UDP, etc.

320x240 resolution for video could be it... compression...

What kind of compression is possible in real time?

Create a collaborative document (google docs) to catalog all potentially relevant network stuff...

Daji Qiao may have relevant expertise in this area (sensor networking)

Make sure packages used are recently updated (active community), have relevant hardware support (features in API don't do what you want). For instance, Bluetooth LE (low energy) is bad...

Design the system in 2 directions: top down so you know what components are / how they interact (functional diagrams / use cases); bottom up because there are certain things you need to know before you make risky choices - need to find the right thing.
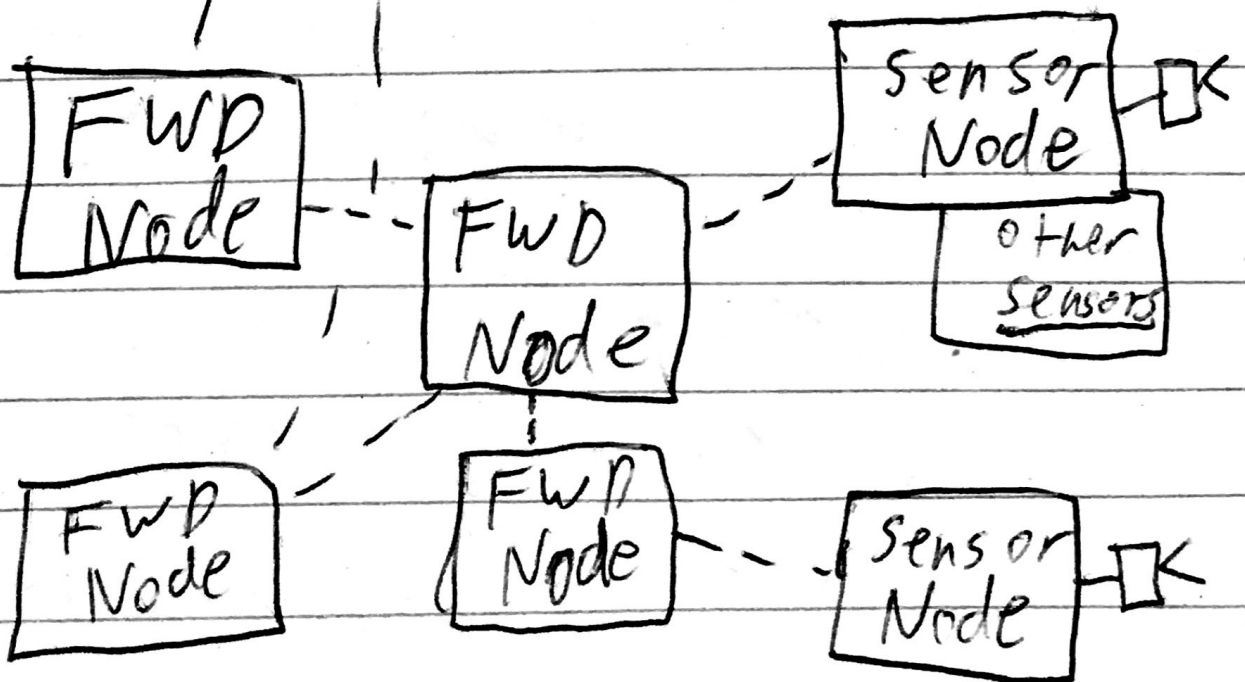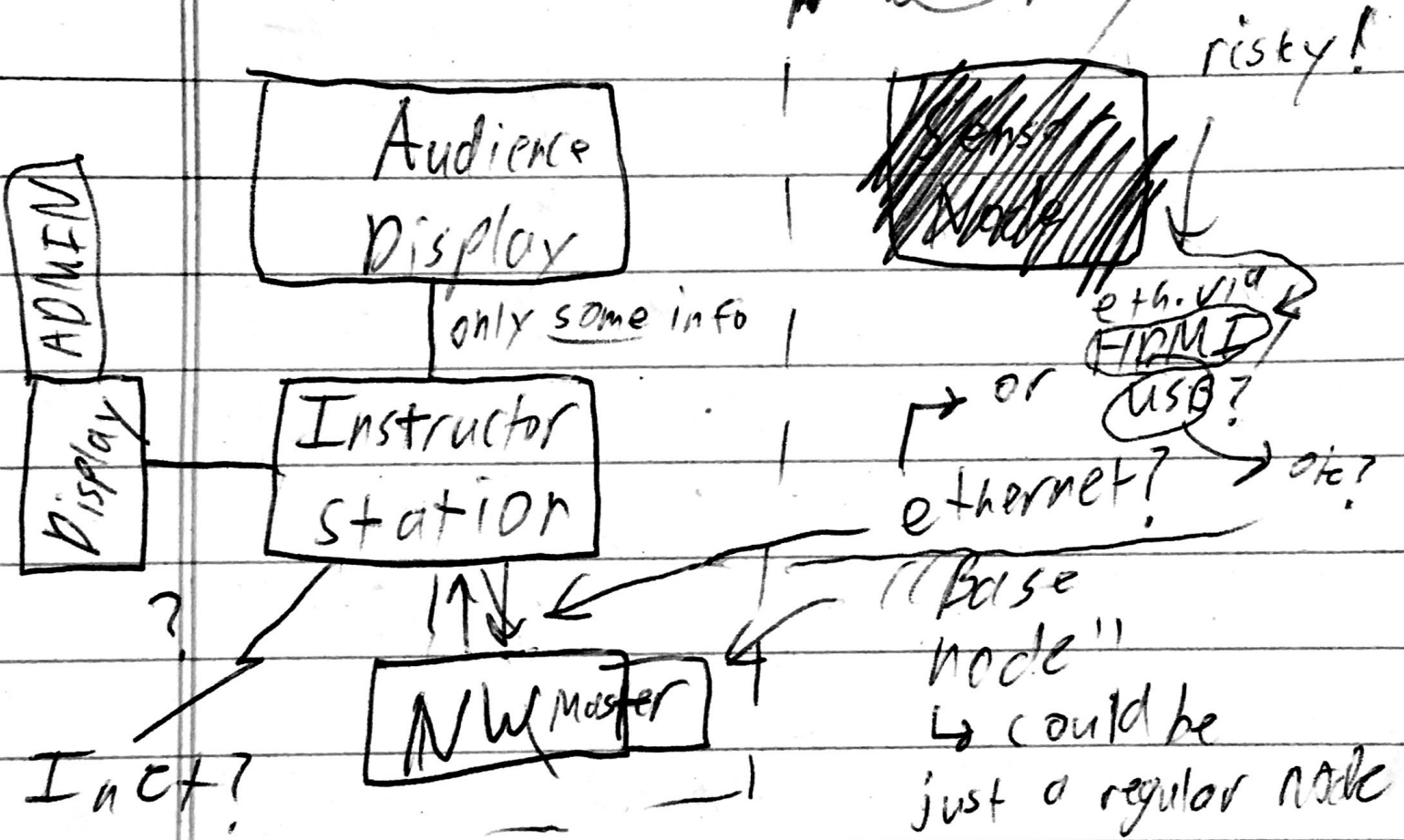
B.A.T.M.A.N - find alternatives and list pros/cons, decide which is best

Probably want this to be datagram oriented (UDP) - stream oriented (TCP) will try to force replays when we really don't care because the video's already gone.

Want to track when we lose messages - show this in UI

1 or 2 displays?
Inst. station is a laptop w/
external displays...

risky!

Audience
Display

Sensor Node

only some info

eth. via HDMI
USB?
etc?

or
ethernet?

Instructor
station

"Base node"
↳ could be
just a regular node

?

Inet?

NW Master

FWD
Node

FWD
Node

Sensor
Node

Other
Sensors

FWD
Node

FWD
Node

Sensor
Node

Inst → USB → New Master
　　　　　↑
　　　maybe too slow?

    ↳ static IP, etc,
still need to know compatibility

→ ~~this is a ...~~

→ This diagram is a functional
diagram for example...

Positioning on some
nodes?
WiFi triangulation
for location → send
info to instructor → internet
for location?
→ does this interfere with
the other networking
we're doing (network
interfaces unavailable, etc.)

Instructor station
will have debug output
on builtin laptop display
→ Audience display is
on external monitor
↳ use 2 browser windows,
could be 2 URLs or
just 2 tabs with a different
"part" of the app

(LED)
Visual cues on nodes &
buttons → turn one on,
which one is it?

Registration system —
two sets should be
usable at once (together / apart)
→ should be easy from networking perspective

LED indicators to show connections:
3 lines of RPi code → LED, pin, ground; info for non-technical users

Instructor - HTTP...

Go ahead w/ usecases/ administrative staff

→ hardwire/ configuration for usecases, restart network master to reload them.