Requirements: PCB Radio

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Signal Receiving

1. PCB Radio shall be able to receive FM and AM radio signal bands.
2. PCB Radio shall have two separate antenna for FM and AM radio capture.
3. PCB Radio's AM antenna shall capture radio signals on the 88 – 108 MHz spectrum.
4. PCB Radio's FM antenna shall capture radio signals on the 540 – 1700 kHz spectrum.

Communication

1. PCB Radio shall have two communication modalities.
2. PCB Radio shall have a micro USB type B style physical connector as one communication modality.
3. PCB Radio's micro USB port shall shall be capable of data transfer, communication, control, and firmware programming capability.

Playing Sound

1. PCB Radio shall be able to play signal locally.
2. PCB Radio's shall have a local speaker.
3. PCB Radio's local speaker shall be large enough for human audibility: 0dB – 80dB.
4. PCB Radio shall be able to play signal externally.
5. PCB Radio shall have an AUX port for external speaker use.

User Interface

1. PCB Radio shall have an adjustable volume.
2. PCB Radio's volume adjustment system shall operate over the working range of the local speaker.
3. PCB Radio shall have an adjustable frequency tuning system.
4. PCB Radio's frequency tuning system shall be adjustable over the entire frequency spectrum of the AM and FM radio frequency range.
5. PCB Radio shall have a display.
6. PCB Radio's display shall display information regarding the operating frequency, volume, and battery life.
7. PCB Radio shall be mutable.
8. PCB Radio shall indicate charging status.

Power

1. PCB Radio shall have a built in rechargeable Li-Ion battery.
2. PCB Radio's rechargeable battery shall be chargeable via the micro USB port.
3. PCB Radio shall be able to compute the charge in the built in battery.
4. PCB Radio shall operate over the temperature range 0°C to 40°C with the rechargeable battery installed.
5. PCB Radio shall be able to play sound on the built in speaker for at least 4 hours with a fully charged battery.
6. PCB Radio shall be able to power off.

Data Logging

1. PCB Radio shall have a built in micro-SD slot.
2. PCB Radio shall be able to log data from antenna to micro-SD.
3. PCB Radio shall be able to log data from battery sensor to micro-SD
4. PCB Radio shall be able to transfer sensor data outward via communication modalities.