Initiative goals to achieve mass sensor deployment

- Accurate sensor measurement
- Direct to Cloud
- Infrastructure minimal
- Low cost
- Deploy and go
- Minimal service needs
- Extensible
A Family of Devices

**Eclipse PRO**
- Infrastructure devices
- Latest industry LTE-M enabled MCU + Bluetooth LE (Nordic NRF9160)
- No infrastructure requirement – just LTE signal
- 100-300uA consumption
- Solar Harvester enabled 3”x3” panel (Self powered indefinitely per power/usage budget)
- Fully sensor extensible
- < $100/device in volume

**Eclipse Lilypad**

**Eclipse MINI**
- Wearable/Personal device
- Bluetooth LE MCU (Nordic NRF52)
- GPS enabled
- Paired to smartphone
- Variable sampling (20s -> 10m)
- Charged (bi)daily
- Fully sensor extensible
- < $60/device in volume
Deeper Dive

Powered by Xbox – 2000mAh controller battery
Deeper Dive

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Modular power system, USB, Solar, other

0.6W 66mm solar panel can charge depleted device in 2 days
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Air flow modelled

Qwiic/STEMMA modularity
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Water Quality

**Conductivity (concentration of ions) = salinity**
- Detection range: 0 – 20 mS/cm
- Temperature Range: 0 - 40°C
- Cable length: 100 cm
- Probe life: >0.5 years

**Turbidity (cloudiness of water) disruption of photosynthesis (storm water)**
- Operating Temperature: 5 - 90°C
- Detection range (from in-lab testing): 0 – 1000 NTU
- Detection resolution (from in-lab testing): 20 NTU

**pH Sensing**
- Detection range: 0 - 14 (4 below is low) (basic 10+)
- Measurement accuracy: ±0.1 at 25°C
- Temperature range: 5 - 60°C
- Cable length: 100 cm
- Probe life: >0.5 years

**Thermal Temp**
- -55°C to 125°C
- 0.5 degree accuracy