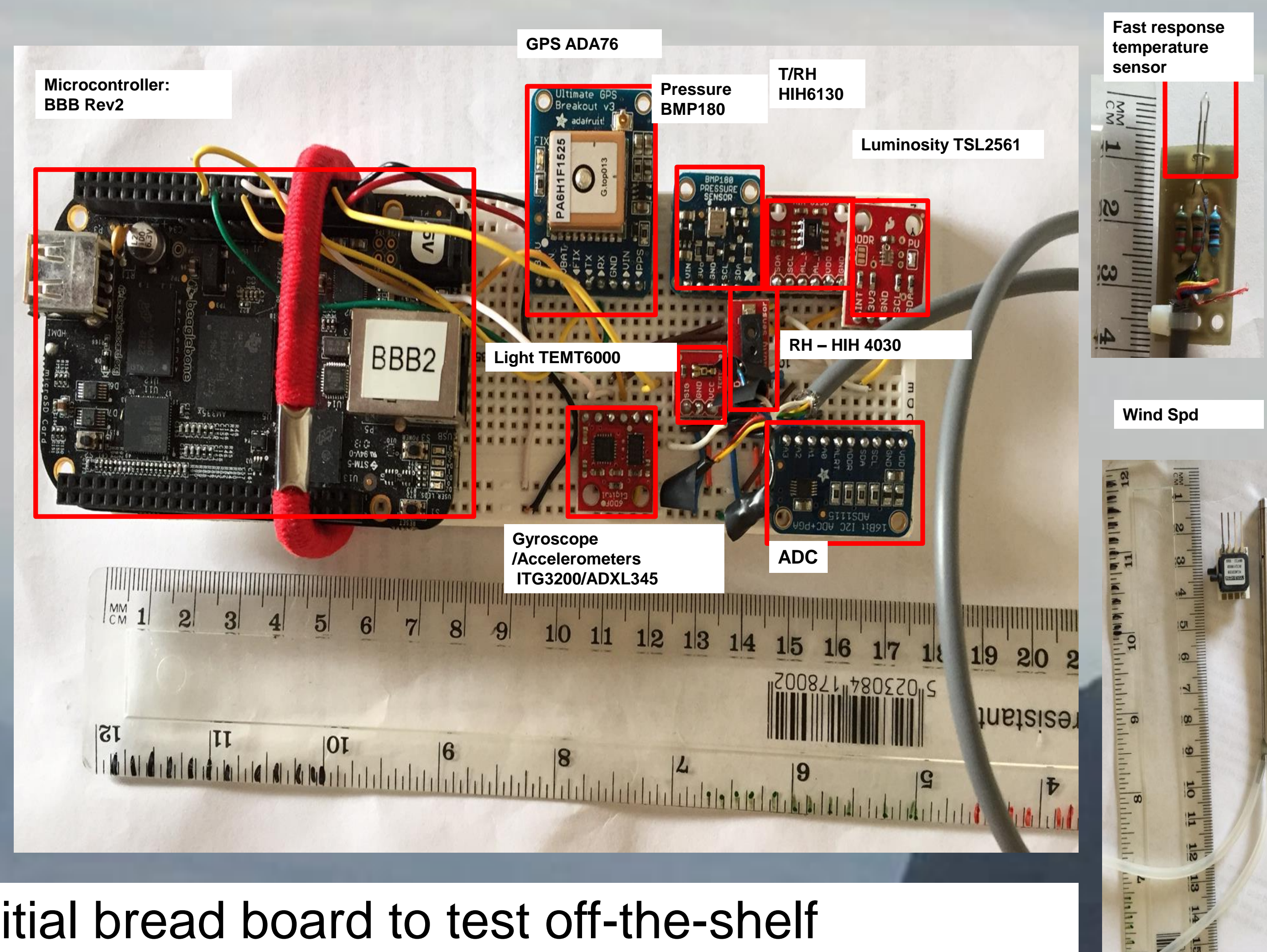


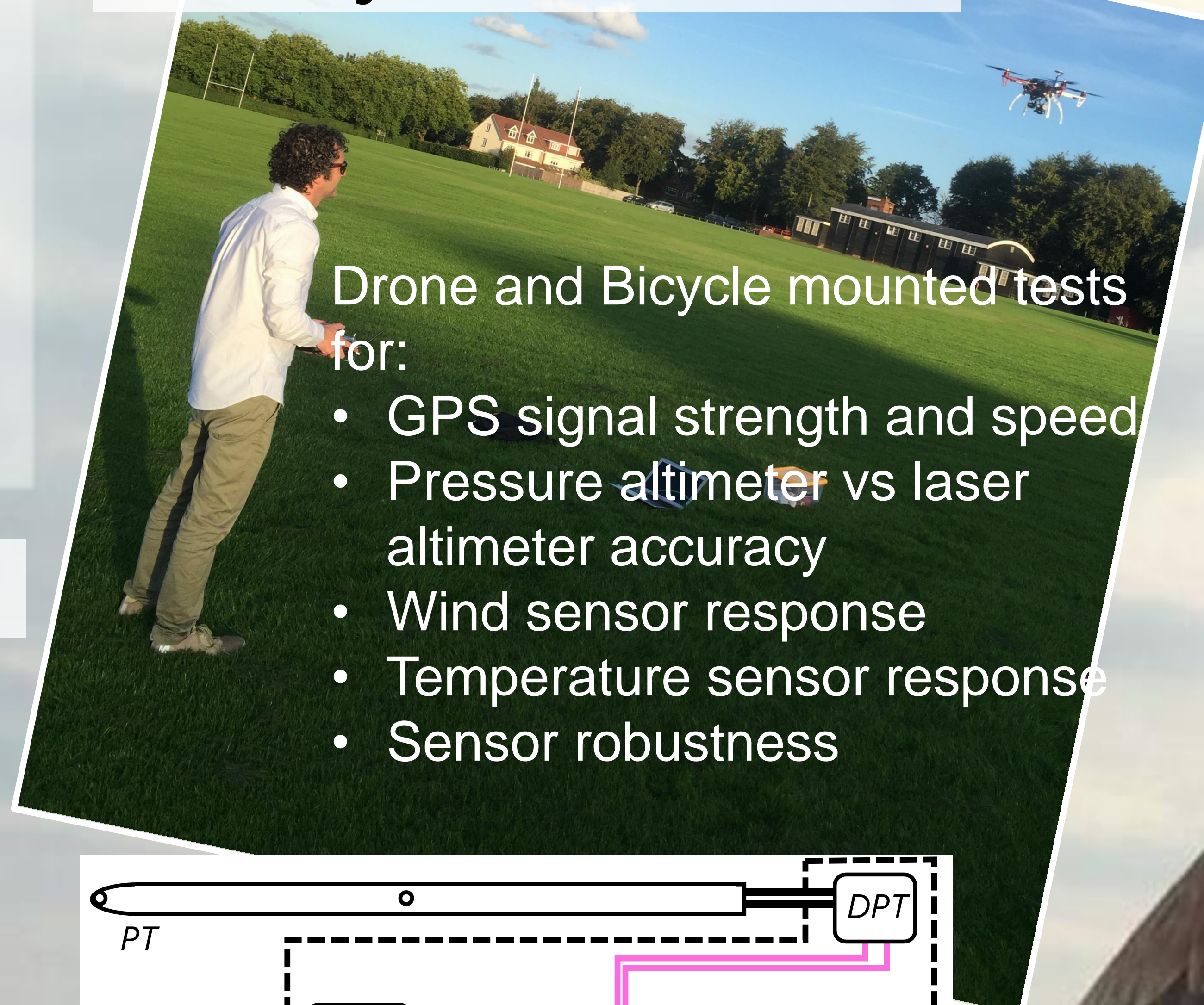


- Meteorological measurements are required above cities to test pollution/heat transport models
- Drones require extensive permissions to legally fly in urban skies
- A bird-carried sensor offers a solution, but requires development and testing

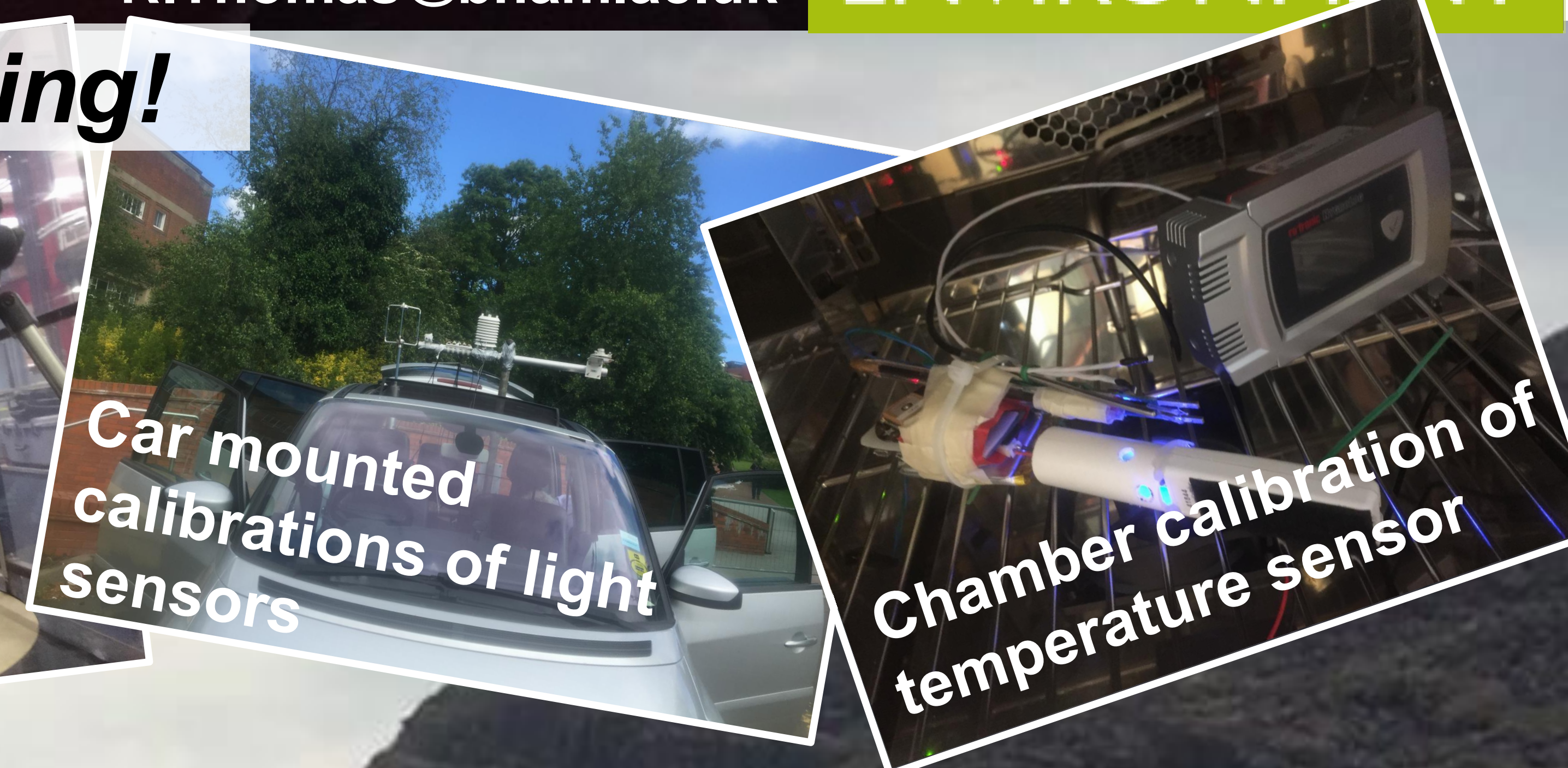
1. Start by 'bread-boarding' the concept



3. Think of weaknesses and ways to test them

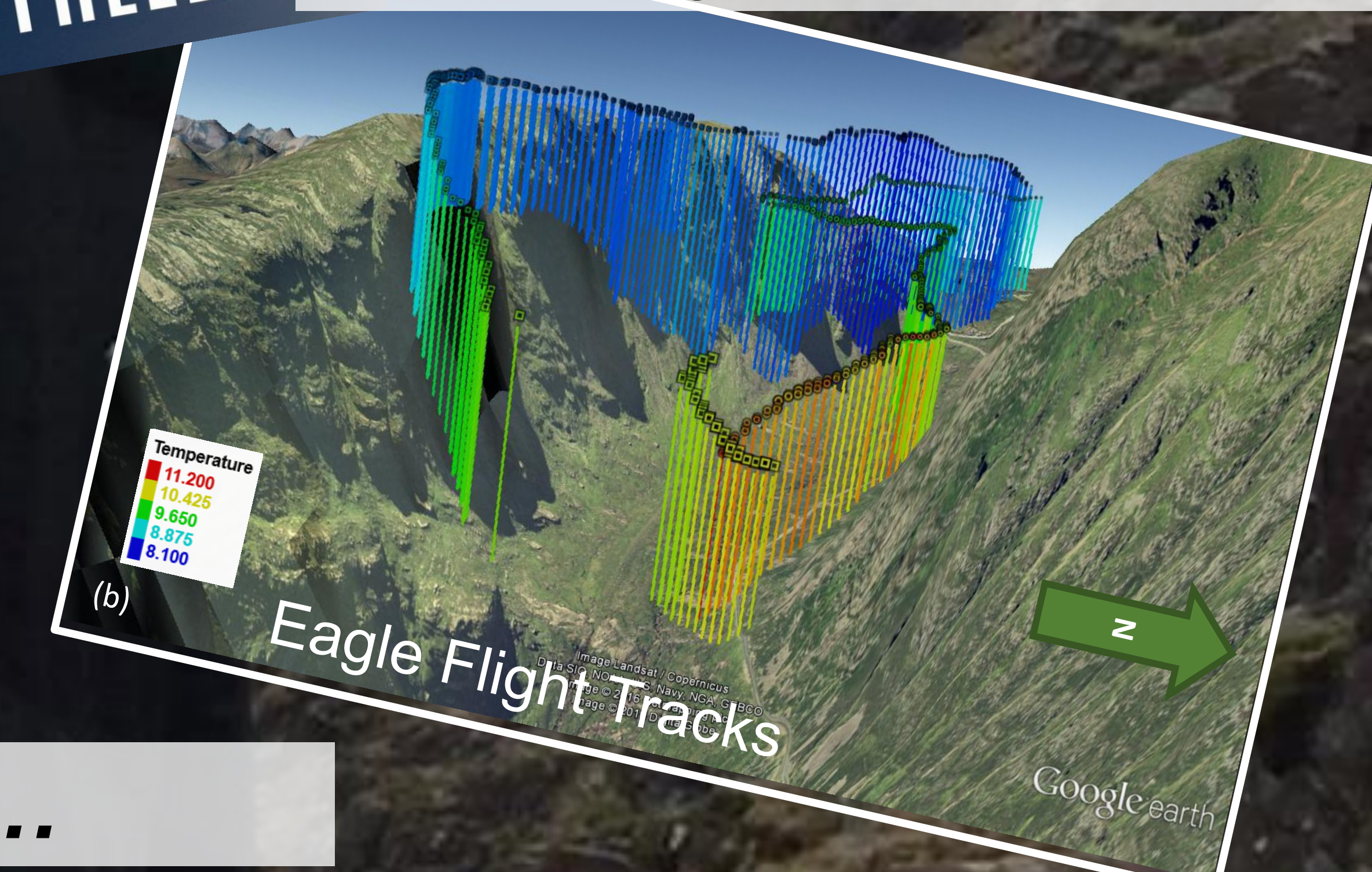
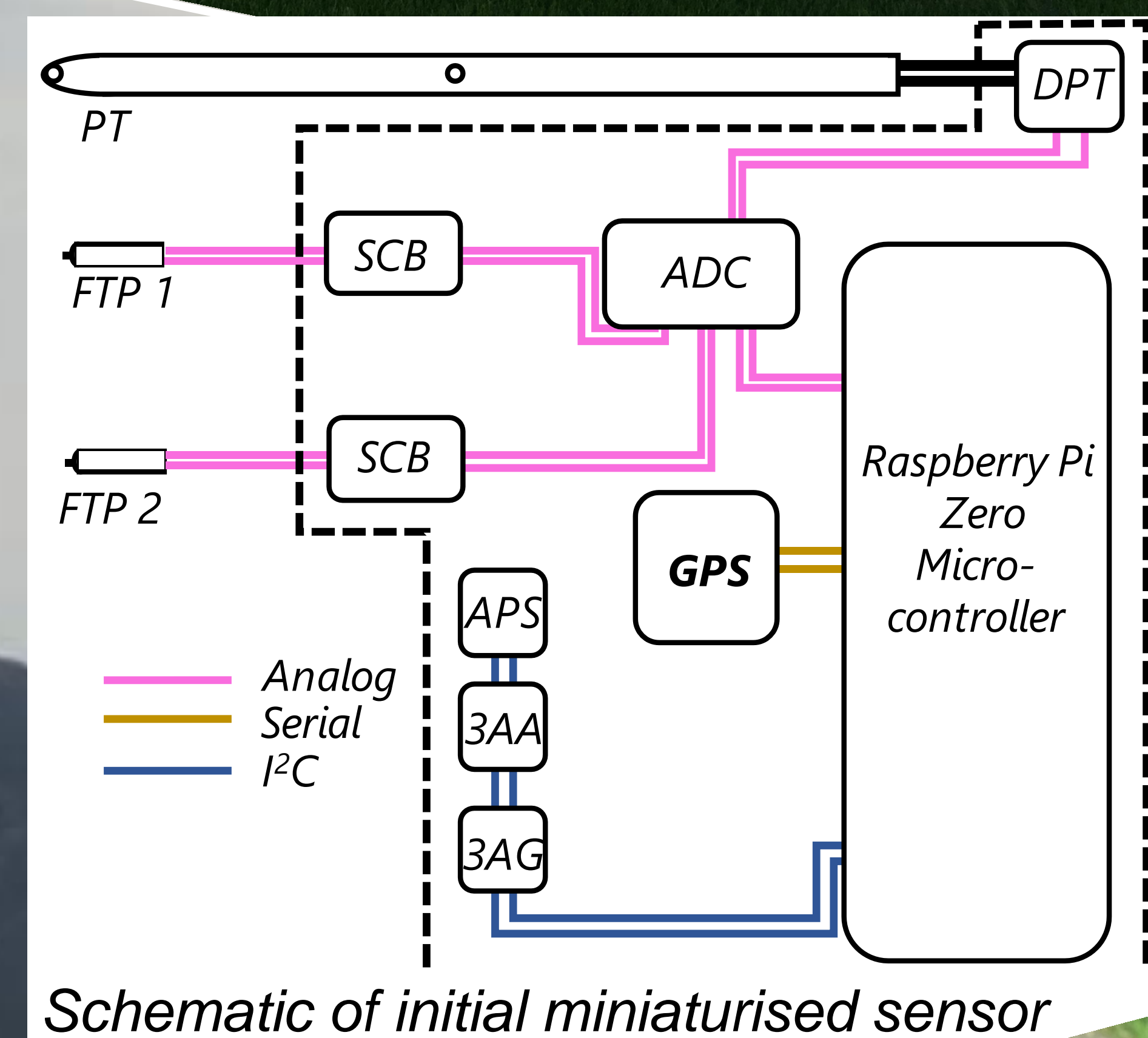


4. Calibrate everything!

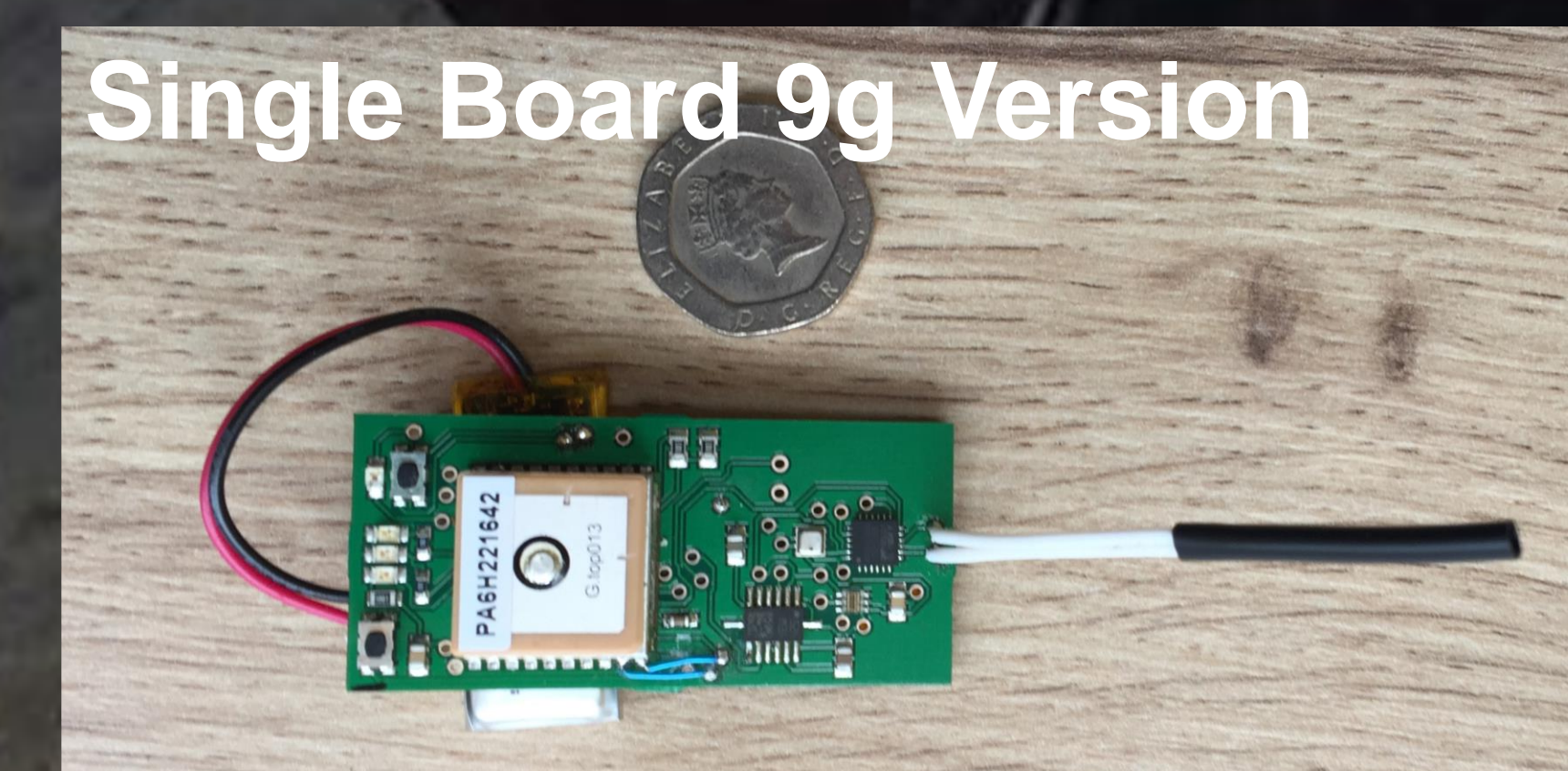


5. Testing the refined prototype

- Freedom Conservation's trained Eagle Victor carried the sensor to check response to bird body heat and accuracy of meteorological measurements.



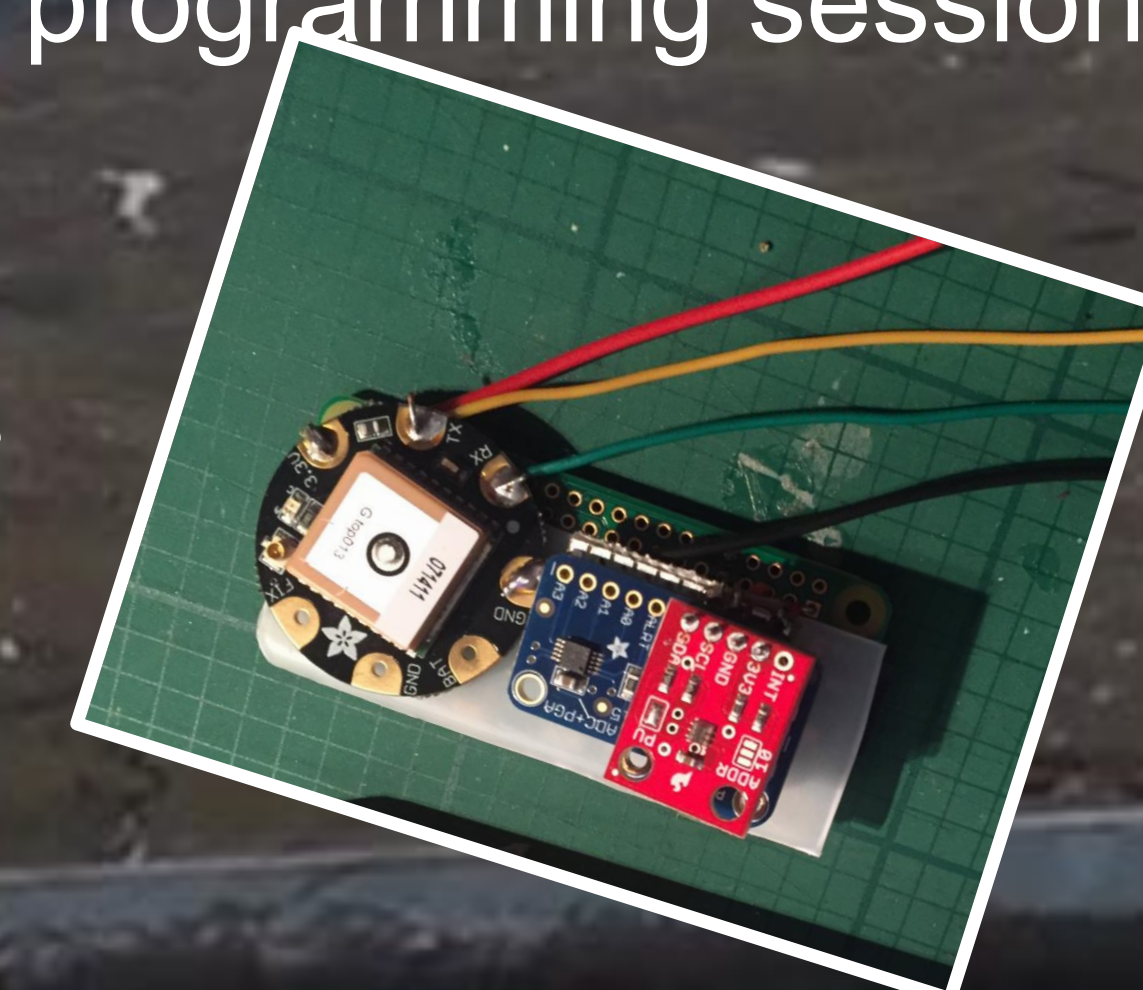
6. Make it smaller and better...



- Wifi and LoRa Network testing underway for real-time data
- CO2 and Fast humidity sensor added
- Solar Panels being installed for long-term deployment

2. Rapid Miniaturisation

Quick shed built miniaturised sensor to test components work together with free microcontroller. Late night soldering and Python programming sessions...



Use a free, lightweight microcontroller



See paper for more details and data...

Thomas, R.M., et al., Avian Sensor Packages for Meteorological Measurements in Complex Terrain and Urban Environments. Bulletin of the American Meteorological Society 2017. (In press. Early release available: <http://journals.ametsoc.org/doi/10.1175/BAMS-D-16-0181.1>).