CPS: Medium: A Secure, Trustworthy, and Reliable Air Quality Monitoring System with Low-cost Sensors for Smart and Connected Communities

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Challenge:

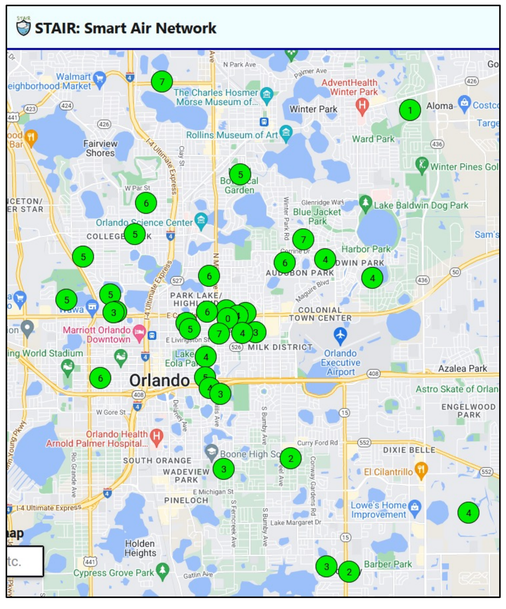
- Sparse air pollution data
- Low-cost sensor data quality
- Environmental IoT security
- Citizen efficacy & trust in governance

One sensor node

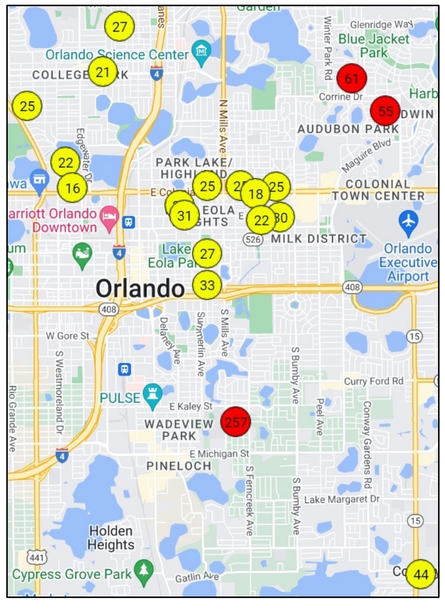
Community meeting

Solution:

- Air pollution model + multi-sensor for calibration & drift correction
- TrustZone based security
- Two-stage deep learning over noisy data
- Framework to measure inclusion and trust of governance



Sensor network near downtown Orlando



Bad air quality due to July 4th firework

Scientific Impact:

- Better sensor data quality
- Secured environmental IoT
- Data-informed prediction
- Improve governance

Broader Impact:

- Pollution impact mitigation
- Public environmental education & community engagement
- Broaden female/URM participation

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