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Project: Sensors and Sensing Systems for Water Quality Monitoring

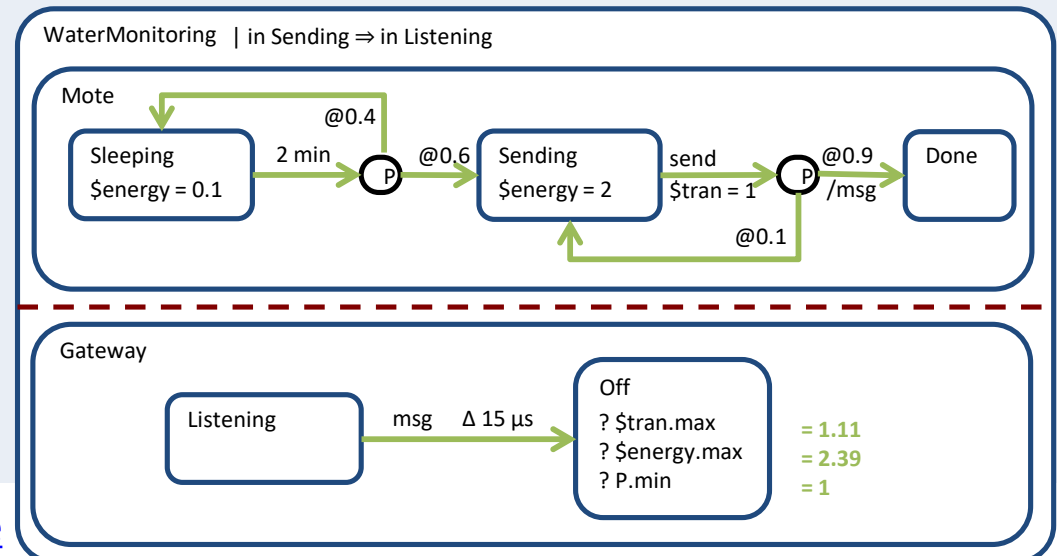
Motes (Sensor Devices, IoT Devices):

- Software correctness a must
- Unreliable communication, changing topology, long distances
- Limited power supply: low frequency processors, low power modes

Background: Model-Driven Development of Embedded Systems

- Visual model
- Correctness checks (SMT solver)
- Analysis for reliability, power consumption, execution time, ... (probabilistic model checker)
- Code generation

<https://gitlab.cas.mcmaster.ca/re-mote>

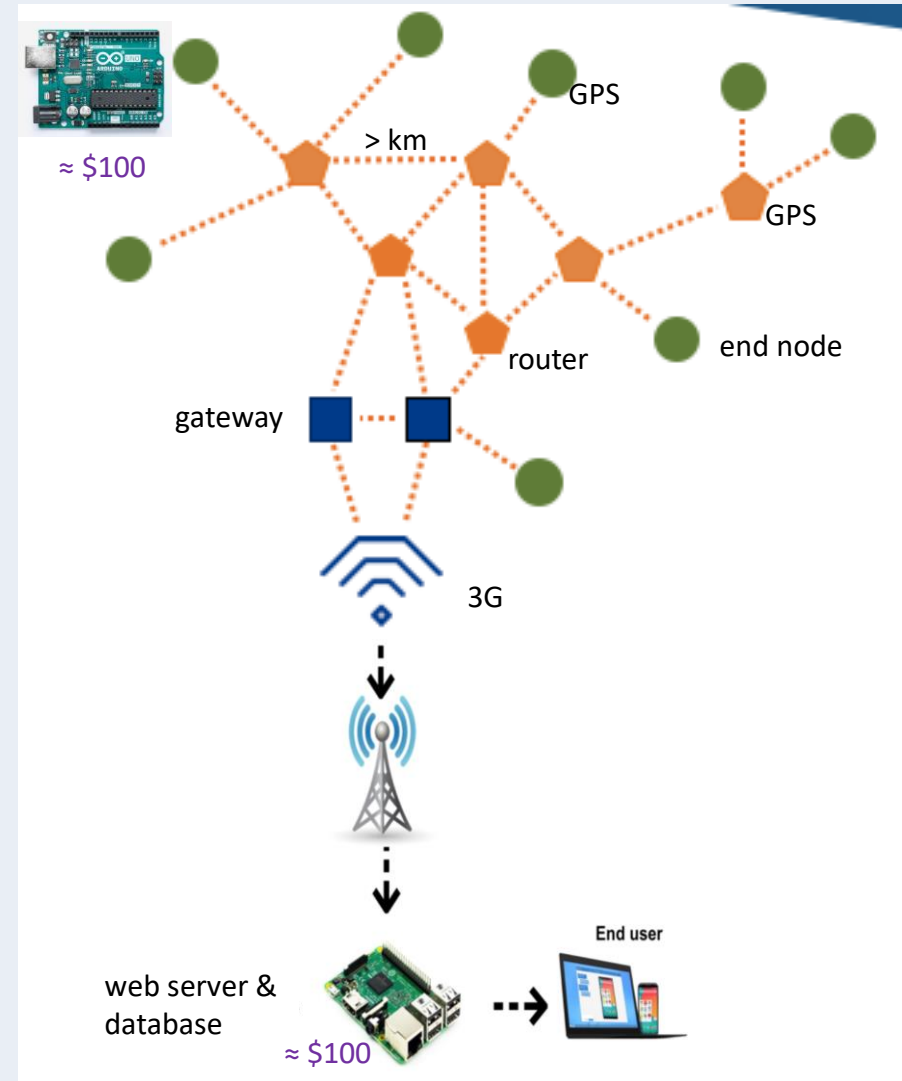


Hardware:

- LoRa low-bandwidth, low-power, long-range mesh network
- Mesh network tolerant to faults, changing topology
- DO, pH, conductivity, temperature, ...

Software:

- InfluxDB timeseries database: summarizing queries
- Web-based & Jupyter notebook interface



Real-time Testing in Lab:

- <http://www.cas.mcmaster.ca/ollie/#/>

Deployment:

- Initially at Six Nations of the Grand River

Outreach:

- Planned for Kawenní:io/Gawęni:yoh high school, starting June 2019

Addition of Turtle Tracking

