Ubiquitous Communication for the Internet of Things
By Daniel Vallance (supervised by Saleem Bhatti)

Motivation: Ubiquitous communication is impossible over IP because IP addresses are overloaded as both a transport layer identifier and a topological network locator.

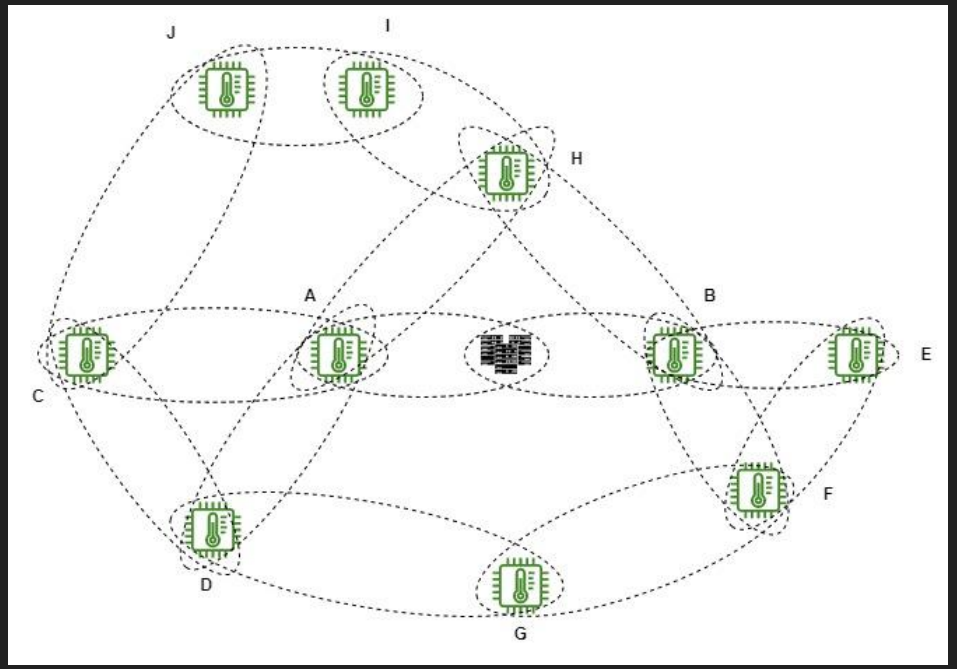
ILNP uses separate identifier and locator values so it does not suffer from this shortcoming.

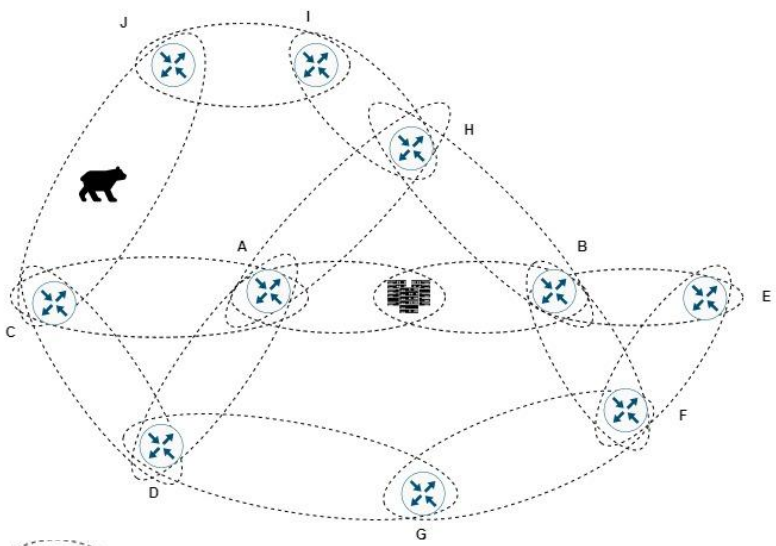
An emulation of IoT devices running ILNP could provide more insight into whether they are suitable for ubiquitous systems.

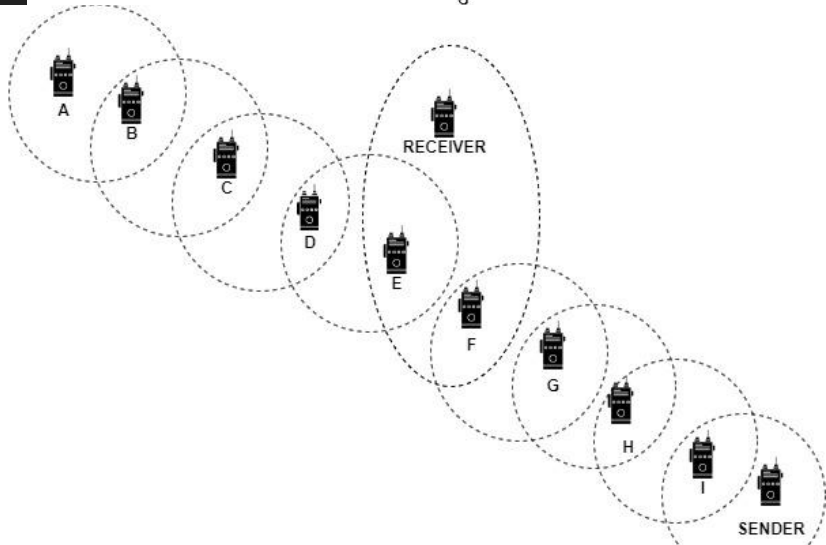
Project summary:

- Implemented an overlay network in Python which emulates ILNP-enabled IoT devices.
- Implemented an API so users may create applications over this overlay network.
- Developed a series of experimental scenario applications which were run on the ILNP and IP emulations.

Experimental Scenario Applications







Results

A more comprehensive analysis is available in the report, however a key insight is that the usage of ILNP in mobile scenarios results in a superior delivery rate. This was expected as ILNP-enabled IoT devices can perform soft handoff.