LoRa IoT networks operate in a star topology whereby all nodes communicate to a central gateway.

Despite the long area coverage provided by a LoRa gateway (5-10 km in urban areas), many gateways should be deployed in order to cover even a small city.

We present a LoRa wireless mesh network set of tools, offering a wide range of experimentation options and performance evaluation tools in order to analyze the performance of LoRa mesh network in urban setups.

Core configuration options supported by the toolkit include the following parameters:

- Transmission Mode (BW, SF, CR)
- Transmission Power
- Transmission Frequency
- Network Topology (Star or Mesh)

Performance evaluation and visualization tools include the following:

- Ping application to measure latency
- Iperf application to measure throughput
- Visualization of Network Connectivity

Mesh routing relies on our AODV implementation that has been ported to Arduino code.

Both types of nodes are custom built based on the SX1272 chipset manufactured by Semtech and the MK20DX128VLH5 micro-processor that is a 32-bit ARM Cortex-M4 CPU.