LoRa connectivity research (Midterm presentation)

1. LoRa specification compliance (V1.0.2 Lora alliance OTAA)
2. Future scope of project and concerns such as mass installation of sensors and easy maintenance or replacement. (this last bullet can be removed as the 7th bullet has lots of content and we may not be able to actually speak to the long term based off of our research this far)

LoRa Long Range LPWAN Low Power Wide Area Network

Uses low frequency, low data, low power, long range.

Wireless sensors battery powered

Why V1.0.2?

Due to the low power usage (3.3V x 104uA = 343.2uW), we chose to use the MKR WAN 1310 as our end node LoRa Module. This module only operates at a frequency of 915 MHz. This frequency is ideal because the United States frequency allocation for LoRa devices is 902-928. Operating in the middle of this bandwidth ensures no interference from other wireless communications. V1.0.2 is the most up to date LoRa alliance specification protocol supported by the MKR WAN 1310. The device we chose supports over the air activation (OTAA) which makes for a more secure and ideal form of node to application connectivity.

V1.0.2 highlights

What is the difference between V1.0.2 and most up to date V1.1?

Future scope

* Diagnostics
  + Echo? (a way for the gateway to communicate with various nodes to ping back. Executed at low traffic times)
  + Send back battery life
* Installation
  + Easy accessibility for maintenance or replacement