LPWAN IoT Networks - Wildfire Scenario

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Glimpse of Wildfires!

Location	Year	Area (km²)	Deaths		Cost
			Fatal	Non-Fatal	
California: Series of Wild Fires	2018	6,141.38	14	41	$2.972 B
	2017	5,590.35	47	211	$18.0 B
	2016	2,709.51	8	-	$480.3 M

How Can LPWAN and IoT Help?

LPWAN protocols provide wide area network coverage for devices with minimal data transmission needs (ex. 300 bytes packet / day) and hence low power consumption (battery powered (>5-10 years). Such devices are known as IoT.
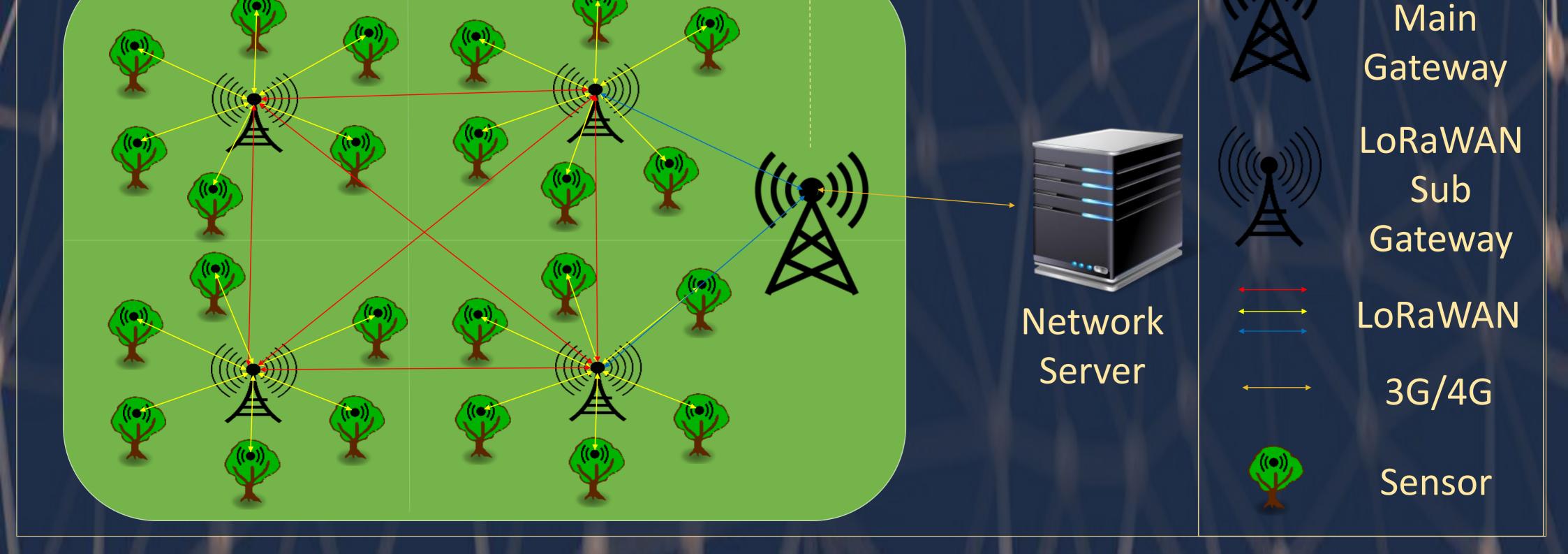
In this work, LoRaWAN protocol is used for Ultra-Dense Scenario.
Model layout:
- Deploying gateways.
- Deploying sensors.
- Adapting mesh topology for LoRaWAN.

- Training ANN for better reliability.
Results:
- Message delivery guarantee.
- Robust and reliable communication.
- Maintain low latency and low power consumption.

+10 Km   10 Km

Network Server

LoRaWAN Main Gateway

LoRaWAN Sub Gateway

LoRaWAN

3G/4G

Sensor