Super-LoRa: Enhancing LoRa Throughput via Payload Superposition

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Today's IoT Landscape


Source: istockphoto.com


Source: unsplash.com


Source: wired.com


Source: unsplash.com

Smart City

Farm

Energy

Environment

> 40 billion IoT devices

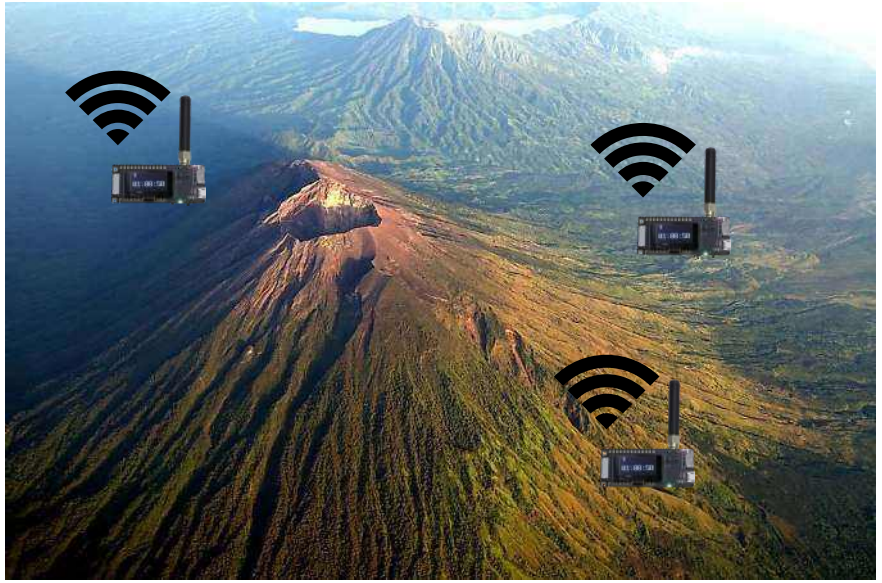
*frost.com

> 10 billion USD market size

*imarcgroup.com/iot-connectivity-market

LoRa IoT Connectivity

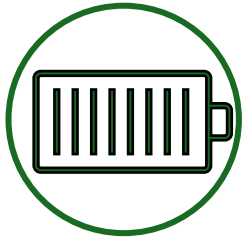
Source: iStock



Source: iStock

LoRa™

Long range (~10 miles)



> 10 years battery

Unlicensed spectrum

Limitations of LoRa Networks?

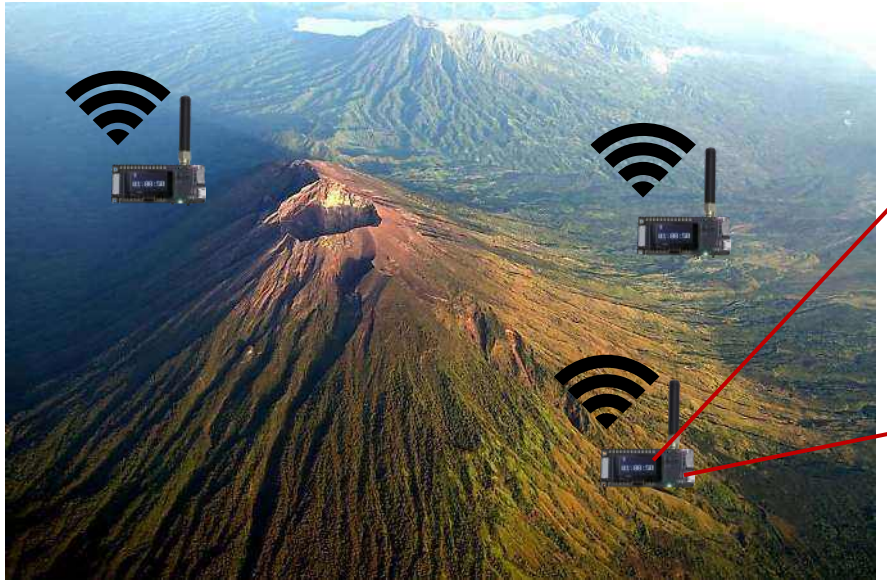
Source: iStock

AI + IoT = AIoT

Artifical Intelligence

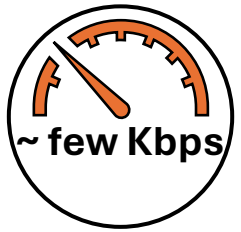
Internet of Things

Artifical Intelligence of Things



Source: iStock

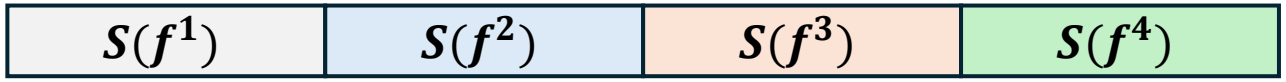
LoRa™



Limited data rates!

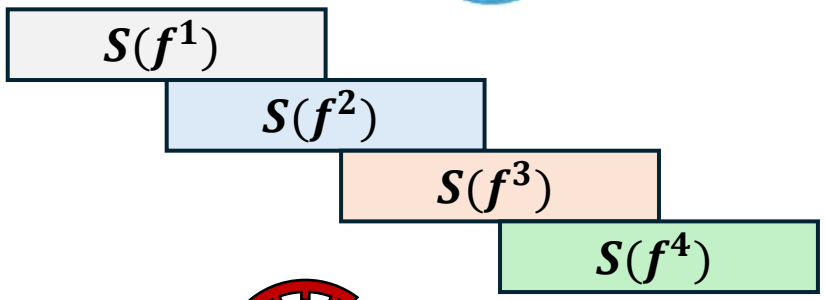
Super-LoRa Is The Solution!

LoRa™



1x

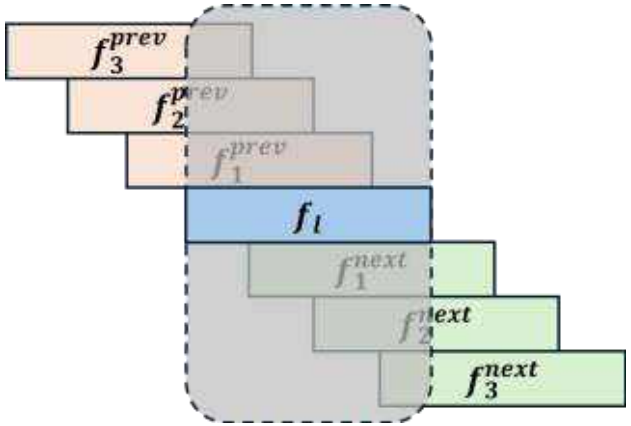
Super-LoRa™

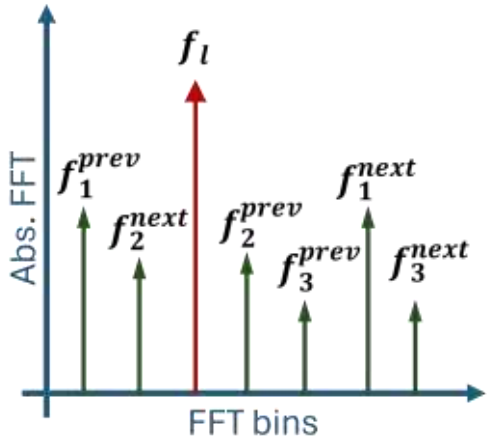


5x !

Uses LoRa's interference robustness to **superimpose payload messages**.

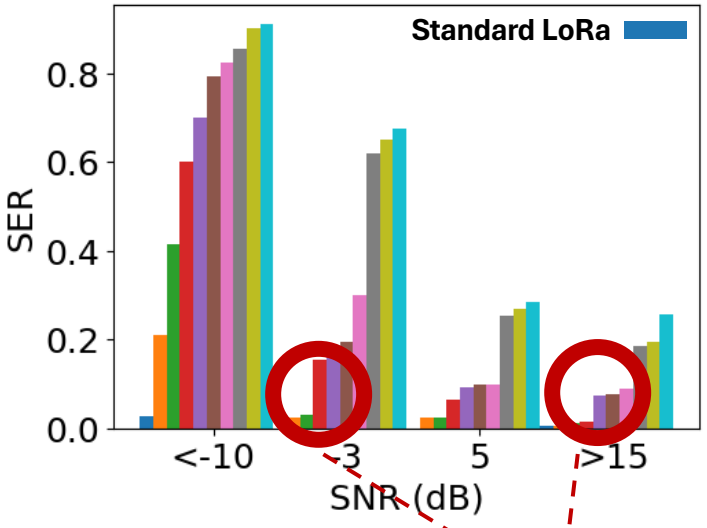
Maintain **low power consumption.**

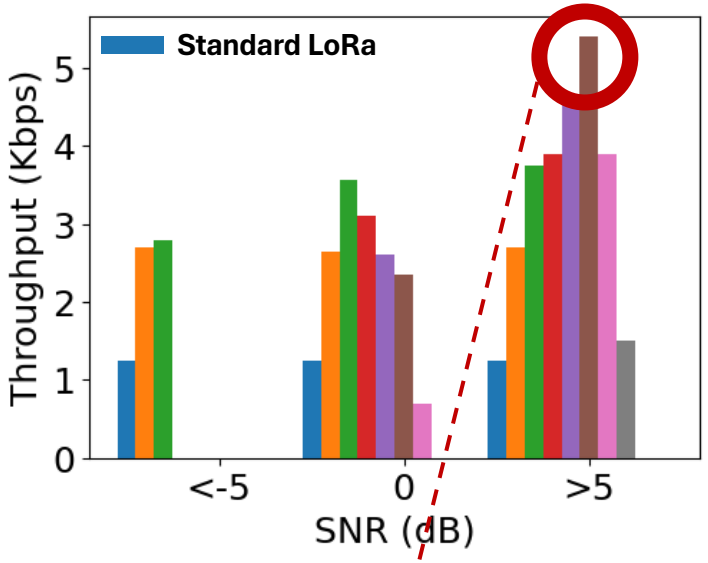




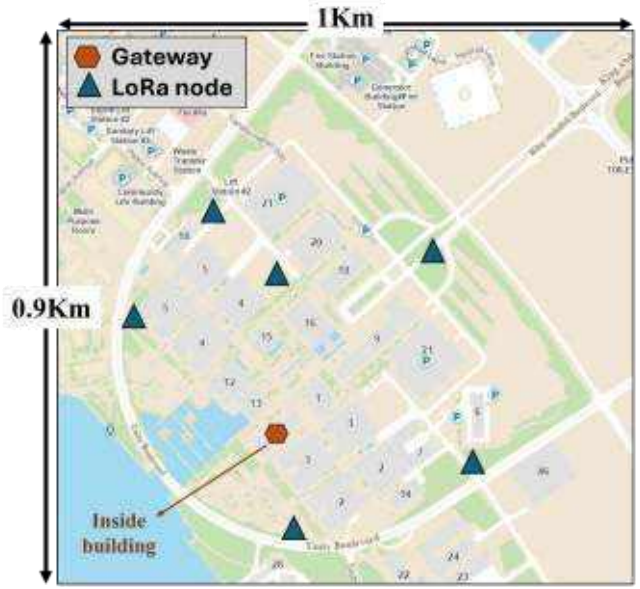
Proof From The Real World!

Indoor setup

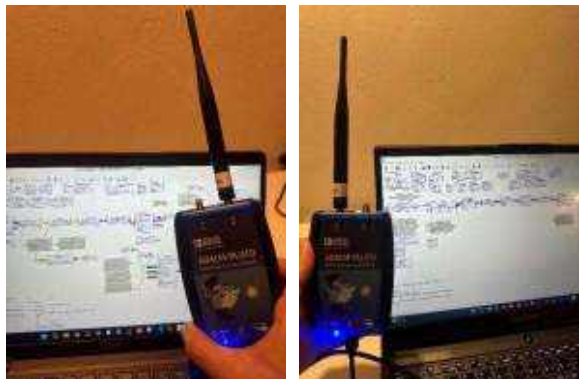




>90% Success Rate! **5x Improvement!**



Outdoor setup



Low-power transmitter/receiver

Conclusion

- LoRa's **limited data rate** restricts multimedia transmission (e.g., images).
- **Super-LoRa** boosts data rates by up to **5×** with **low complexity** and **low power**.
- Enables richer data exchange for **smart agriculture** and **environmental monitoring.**

Thank you!

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