School of Computer Science & Software Engineering
CITS4419 Mobile and Wireless Computing

LoRa Parameter Choice for Minimal Energy Usage

Week 12 Tuesday 23 October 2018

This lecture introduces LoRa (long range) radio technology

Recommended Reading

- B. Dix-Matthews, R. Cardell-Oliver, C. Huebner, LoRa Parameter Choice for Minimal Energy Usage, To appear RealWSN'18, Shenzhen China, November 2018
- P. J. Marcelis, V. Rao, and R. V. Prasad. 2017. DaRe: Data Recovery through Application Layer Coding for LoRaWAN. In Proceedings of the Second International Conference on Internet-of-Things Design and Implementation - IoTDI '17. 97–108. https://doi.org/10.1145/3054977.3054978

Questions (to guide your listening and reading)

1. Explain why achieving all three objectives of 1) low energy use, 2) adaptability and 3) reliability of a LoRa network simultaneously is a challenging problem.

2. How does the LoRaWAN mesh protocol support adaptive parameter setting? Why is this approach not ideal for very low power applications?

3. Explain the main relationships in the tradeoff between energy use and packet reception rate for different LoRa settings (refer to Figure 4 in the paper).

4. What are the main implications for LoRa protocols of varying channel conditions over time. Refer to Figure 3 in the paper for your answer.

5. Compare and contrast the forward error correction strategies: 1) data replication; 2) data replication with compression and 3) convolutional coding