Review of: "Optimized Low-Powered Wide Area Network within Internet of Things"

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Potential competing interests: No potential competing interests to declare.

- Author tired well to write a paper about IoT, in context of LPWAN & optimizations, but significantly lacks of technical details, problem statement with effective research data, solutions and overall structure of the paper.
- As part of study, author should also include pros & cons of LoRaWAN
- LoRaWAN vs other technologies (e.g.NB-IoT) is not described to compare key technical performance indicators such as :: Latency comparison, Capacity comparison, Energy comparison, interference cancellation efficiency etc, which could have helped to demonstrate effective gain due to technique mentioned
- It is vaguely described that the technology mentioned in paper is better than others without proper explanation. e.g how is it better than other technologies for "*health care, traffic safety and control, smart grid control applications, complex industrial applications, as well as manufacturing, training, and surgery*", "*built-in security*", "*GPS-free geolocation*" etc
- Author mentions that, "*Numerous algorithm types for multi-objective problems*" and "*Many IoT techniques are studied by the researcher.*" but doesn't explain in detail about those numerous algorithm, problems and techniques
- The paper lacks of any explanation with respect to complex RF environment such as the capacity, Interference etc
- Varying duty cycle & spreading factor is mentioned but simulation data for the same is not included
- The statement/ equation seems to be incorrect, "*This means that if the code rate is denoted as k=n, where k represents useful information and the encoder generates n number of output bits, then n – k will be the redundant bits.*"
- Code rate table need to be explained in more detail
- As the optimization is based on PSO algorithm, it should be explained more in depth to show how exactly it would be helpful for IoT applications
- Author should add more detail about, how voice traffic has more delay in simulation then data traffic despite of having low load (bit/rate) which is contrary to the claim that low bit rate will lead to low delay (fig 4.6)
- Fig 4.9 is misleading as it meant to show power consumption with respect to data rate and buffer size, however, power consumption is not the metric of x or y axis.
    - Also it would be better to put details about how buffer data is not reducing despite having higher data rate for sigfox compared to others (assuming if amount of data to be transmitted is constant.)
- In order to conclude the claim that LoRaWAN protocol has better energy efficiency, author should add plot showing bit rate vs energy consumed with optimization and also across various technologies