Smart Lora parameters selection

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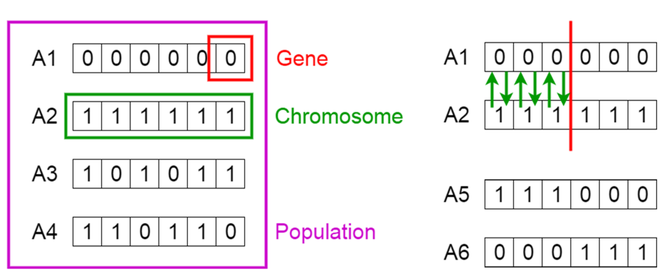
1. Introduction

The need of new kind of wireless communication that could send data far away with low power consumption emrged rencently to support IoT application like smart building smart enviroment monitoring. **LoraWan** is one of this emerging wireless communication, it allows sensors to reach the gatheway in a range of 5Km. Unlike other technologies Lorawan is the best versatile sollution to deploaye IoT apllication in both urban and rural area where there is no communication infrastructure.

2. Genetic Algorithm

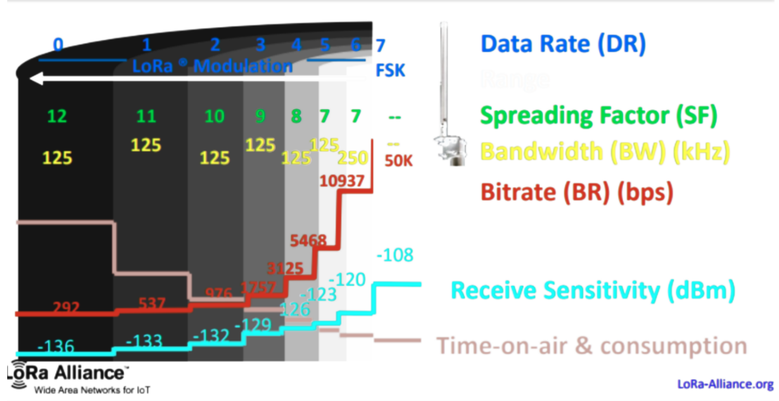
A genetic algorithm is a search heuristic that is inspired by Charles Darwins theory of natural evolution. This algorithm reflects the process of natural selection where the fittest individuals are selected for reproduction in order to produce offspring of the next generation.



3. Parameters selection

The physicla layer of Lora thecgnology (Semtech SX1276) hase 4 parameters which make 6720 possible settings:

- **SF:** Spreading factor [SF7 - SF12]
- **CR:** Coding rate [4/5 - 4/8]
- **BW:** Bandwidth [7.8Khz - 500Khz]
- **Tx:** Transmition power [-4dBm +20dBm]



4. Applications

5. Results

6. Conclusions

7. References