Objective of this work

- Provide proof of concept in hardware for BitSurfing
- Make wireless communications hardware much, much simpler!
- From complex sub-circuit to as simple as a LED/detector
- From energy-hungry to self-sustaining/perpetual
- From expensive to cheap!

Wireless Communications: Creating and Emitting Symbol Sequences

The BitSurfing Network Adapter

State of affairs

- In our previous work we provided:
  - The analytical bounds for the BitSurfing packet latency
  - Codebook construction for efficient BitSurfing
  - Evaluation via simulations, covering multihop cases (BitSurfing NICs)

- But does it really work in practice??

Promising results

Conclusion

- This study provided a proof-of-concept level implementation of BitSurfing, which is a novel communication pattern for IoT devices.
- According to it, nodes wait for the opportunistic production of their intended messages by other sources, reducing inter-IoT node communication to the exchange of simple short pulses.
- The present study compliments past theoretical studies and proves that BitSurfing is feasible. To practical, and by means of hardware such as the Raspberry Pi family.
- A practical operational model was introduced, showcasing the realizability of BitSurfing in challenging cases with varying computational capabilities per hardware node.