EN2130 – Communication Design Project

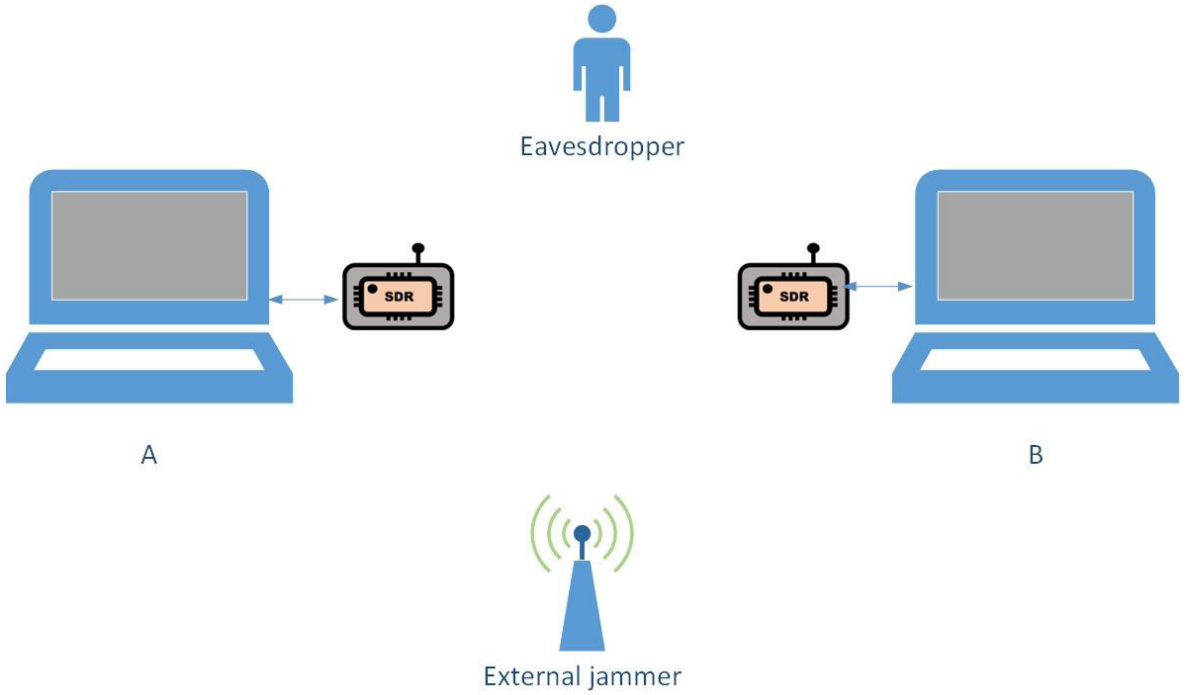
Course Project

Learning outcomes

- Identify the requirements and limitations of a basic communication system.
- Select a suitable communication technology to cater to a given simple application.
- Select necessary components to build a simple communication system (wired/wireless) to solve a given problem.
- Realize a simple communication system to enable successful end-to-end connectivity.

Requirements

- Implement a point-to-point digital wireless communication system using software defined radios
- Communications must be secure and reliable



Requirements

- Transmitter design
  - Encoding
  - Security implementation
  - Reliability enhancement
  - Jamming protection
  - modulation
- Receiver design
  - Reliability enhancement
  - Demodulation
  - decoding

Requirements

- Communications to occur in the 2.4 GHz ISM band
  - Adhere to maximum power limitations
- User interface
- Performance evaluation
  - With distance
  - End-to end delay
- Optional features
  - Channel estimation
  - Adaptive transmission
  - Closed-loop system

Evaluation

- Presentation – 10 mins (50%)
  - Explaining the design methodology
  - Justification of selected techniques and parameters
  - Performance figures
- Demonstration (30%)
  - Functionality check
- Individual questioning (20%)
  - Understanding of the overall design