

Bishop's University  
CS 501 – Internet of Things  
Assignment 4: Sensor Communications

## I. Introduction

The goal of this assignment is to run and extend a network protocol like the Ping protocol. We will develop a very simple broadcast communication protocol in which each sensor node sends a Ping packet to other nodes via broadcast. Once a sensor node receives a Ping packet, it replies with a Pong packet on the broadcast channel.

## II. Exercise

Read and deploy the sensor code, which is provided (PingPong.c), on at least two sensor nodes using Cooja simulator.

Try to answer the following questions:

- The broadcast protocol is inefficient. Why? (think about scenarios  $> 2$  nodes)
- How could the protocol be made more efficient?
  - ✓ Show it in a formal way (diagram, text),
  - ✓ Bonus: Extend the code with your enhancement!