**Project definition:**

Data collection protocol in OpenWSN: OpenWSN have integrated 802.15.4e (TSCH – Time Slotted Channel Hopping) which allows potential solution for typical data collection protocol problems. By using TSCH we can make data collection low latency, highly reliable and more energy efficient.  
Collection protocol in OpenWSN already have a tree based protocol. When particular node is removed, part of the network is also removed. Protocol should be able to react to that. Other than that node disconnection can also also happen when the nodes are out of the range.

**Goals & Milestones:**

1. Creation and maintenance of tree structure for collection protocol. It should be adaptive to topology changes.
   1. Go through existing implementation in OpenWSN and check how the current version of collection protocol is implemented.
   2. Tree structured collection protocol might be maintained in the following way:
      1. All nodes send periodic message to the tree (apart from the root itself)
      2. Root can be collection point of the tree.
2. Scheduling of data transmissions (sending)
   1. Ignore channel hopping at the beginning. It is pseudo random.
3. Assignment of more free slots to the nodes for transmission.
   1. Assignment of slots can be contention based or reserve based.

[*Note:* Goal #3 is a bonus goal and it could be done only if here are any time left after completion of first 2 goals.]

**Project schedule:**

|  |  |  |
| --- | --- | --- |
| **Date** | **Specific task** | **Goal** |
| 28.04.2016 | Creation of plan, literature research | Moodle submission by 23.00Hrs |
| 12.05.2016 | Existing code review, Raspberry Pi as platform? Writing simple code to run with TSCH.  Software Design documentation submission | Moodle submission by 23.00Hrs |
| 26.05.2016 | Implementation of Goal #1 |  |
| 09.06.2015 | Implementation of Goal #1 | Moodle submission by 23.00Hrs |
| 23.06.2016 | Completion of Goal #1 |  |
| 07.07.2016 | Implementation of Goal #2 |  |
| 21.07.2016 | Implementation of Goal #2 | Moodle submission by 23.00Hrs |
| 04.08.2016 | Completion of Goal #2 |  |
| 18.08.2016 | Completion of final version of coding | Waiting for final feedback of supervisor |
| 25.08.2016 | Inline documentation & Coding finalization | Moodle submission by 23.00Hrs |
| 01.09.2016 | Final slides, report submission in Moodle | Moodle submission by 23.00Hrs |

**Task Distribution:**  
- Single member lab. Not applicable.