**Master Thesis (CoAP Testing using TTCN3)**

1. Introduction to **CoAP**
   * + - What is OPC-UA and how it is useful.
       - Why IOT should be 100% reliable?
       - Why need for OPC-UA testing?
2. Research on different IOT testing areas (e.g. **CoAP**, Security, Performance, Functionality, Compatibility and etc.)

* Research on what parameters are involved in the above testing areas to assess the IOT device
* For e.g. In order to check if the security level is perfect, we need to check the following parameters:

1. Identity and Authentication
2. Data Protection
3. Data Encryption
4. Storage data security in local and Cloud
5. Research on language selection and defining tasks in that language

* Introduction to **CoAP**
* Why using OPC-UA and its advantageous over other languages?

1. Implementation in **CoAP**.

* Write test OPC-UA for different aspects in TTCN3.

1. Sample test cases for security

Verify no unauthorized access to device or information

Verify data on compromised IOT devices can be remote wiped out.

* Comparing with different approaches (For e.g. Fuzzino)

1. Making OPC-UA virtualized. (Theoretical – till date)

* How can TTCN3 environment be made into web based user interface
* Design a GUI for OPC-UA and compiling TTCN3 code