MŰEGYETEM 1782

MSc Thesis Task Description

Aizhan Beisenbay
candidate for MSc degree in Electrical Engineering

Automated functional test of wireless embedded transmitter

The establishment of wireless connection for communications among the nodes of an IoT system or sensor network is essential for flexible and maintenance free applications. The reliable operation is a must in many cases to avoid data loss and to maintain a secure communications channel. To assure reliable operation a complex system test has to be performed.

The main goal of the Thesis is the implementation of a complex automated test system for a wireless transmitter unit including (i) the communication protocol of the wireless unit, (ii) the automated functional testing of the main blocks of the unit and (iii) the automated test report generation.

More specifically, the wireless unit under test is a TRF6900A FSK transceiver produced by TI. During the completion of the tasks different measurement devices like Signal and Spectrum analyzer, DMM, etc., has to be integrated using a common software platform to perform various automated tests. The measurement of the signals of the wireless unit is performed by a PXI-based professional chassis housing the necessary measurement instruments available at our department. The evaluation of the results has to be performed by the same platform that runs the test and control software to be developed. The results generated during the automated measurements have to be logged in such a way that meets the main requirements of traceability.

Tasks to be performed by the student will include:

- Implement the communication protocol to control the TRF6900A IC via parallel port
- Identify the main building blocks of the transmitter unit that are important in terms of functional test
- Elaborate and implement the test procedure for the functional testing of the unit
- Evaluate the test results in an autonomous way
- Implement automated report generation subsystem that provide the main features of traceability

Supervisor at the department: Tamas Krebesz, assistant lecturer
External supervisor: NA

Budapest, 1 October, 2018

…….
Tamás Dabóczi, PhD, dr. habil
associate professor
head of department

Budapest University of Technology and Economics
Faculty of Electrical Engineering and Informatics
Department of Measurement and Information Systems
1117 Budapest, Magyar tudósok krt 2. I.ép.444
Tel: +3614632057, Fax: +3614634112
www.mit.bme.hu e-mail : mitadm@mit.bme.hu