Embedded Systems Fundamentals - CIE 314 - spring 2017

Project Document – version 1

Aim:

Make use of learned concepts to analyze, design, develop and validate an embedded system.

Description:

It's required to build a prototype for an embedded system with the following specs:

- The system is considered as an IoT project i.e. it connects to a cloud server and updates its data base regularly.
- The system serves as a credit system that enables you to purchase products and restaurant meals inside ZC.
- It identifies the users using the ZC ID that contains RFID tags.
- It withdraws the amount of the purchased products directly from the user account on the cloud server. (note: security issue should be addressed)
- It enables the users to charge their account as well.
- It is assumed to use the galilio kit available at your lab, however any other kit is accepted.

Guides:

- Start with the above specs and complete it with other required design specs that enhance the operation of your system.
- Design the system and indicate the main hardware and software components of it.
- Develop the required software for the MCU and for the cloud server.
- Regularly test each subsystem (unit test).
- Integrate all components together and test all the system (system test).
- Verify and validate your system for correct operation.

Teams:

- Groups and each group consists of (3 to 5) members.
- All the group members will be graded the same mark.

Delivery time:

Week 13th, on Wednesday, 21 May 2017.

Delivery mechanism:

- Each group should present their work and validate their system.
- 15 minutes only are allowed for each group to finalize the delivery process.
- Groups' presentations are ordered by their leaders' names (alphapiticaly) or an excel sheet will be delivered to you to choose the suitable time.
- The project presentation consists of no more than 10 slides and should be submitted both soft and hardcopy.
- A report of the project contains all the phases of work should be presented as well.
- The developed software is required to be submitted.
- Other instructions may be included in the second version of the project document.

Links that may be useful:

http://www.electronicshub.org/iot-project-ideas/

http://www.electronicshub.org/free-project-circuits/communication/

http://www.electronicshub.org/communication-based-projects-ideas/