Each team should submit a report of no more than 3 pages, presenting the system and communication protocol design for smart locks. Your system should contain 1) a home gateway (your host machine, which should be accessible on the Internet by setting up port forwarding); 2) a simulated Lock(your RPI VM); 3) a mobile client (it can be the browser on your phone or your teammate's phone). Your design should: 1) specify the basic functional/non-functional requirements of your system; 2) introduce your system/protocol design and the reasons behind your design choices; 3) divide the implementation workload among your team.

Required Functionalities:

1. Register itself to the gateway and send heartbeats and operation logs to the gateway.
2. Lock & unlock if given the correct password (permanent or temporary).
3. Activate or deactivate the temporary password (once used to unlock the door, the temporary password should be disabled automatically).
4. Send notifications if someone breaks the lock.
5. Return operation results and error messages.

Grading and rubric:

Your submission will be graded based on:

1) does the design provide all required functions?

2) do the non-functional requirements sound reasonable?

3) does the presented design satisfy the non-functional requirements?

4) the implementation workload of each group (some group has 3 members while some have 4 members).

5) originality and novelty of your design.

6) clarity of your report.

Tips:

1.You can choose to implement necessary parts of your design, not all of them.

2.This is a networking course! Focus on how your communication procedure impacts the system's performance! Keep your report within 3 pages.

3.Divide the workload:

1) Deliver on time: one video presentation required for CP5.

2) Everyone has reasonable contribution: individual reports required for CP5.

4.If you are interested in exploring some possibilities (e.g., different system components, different functional requirements), contact the instructor.

For more information, please refer to the video [slides Download slides]: