Preliminary design description

You should write a concise description of the design you have chosen for your project. The intention of this description is to make you consider your options and start the thought process required to design a good real-time system.

To do so, you should:

- Read through the specifications and understand the challenge.
- Think through and discuss the major design decisions.
- Decide on a preliminary design for your system.

The description should reflect the above points. However, we are not interested in general descriptions of the challenge or trivial statements. We want to know about your unique design decisions and why you have made them. Focus on what is complex and non-obvious. Keep it concise; longer is not better.

Remember, this is a preliminary design description, so you can make changes at any time later during the semester if desired.

Formal requirements:

- The timeslot, workstation number and group ID on the top of the first page.
- Names and emails of all group members on the first page.
- Max length: Keep it to less than 1 page of text. (that is, excluding titles, names, emails, figures, and diagrams).
- The description should be handed in as one PDF document named "PDD-##.pdf", where ## is your group ID.

Recommended content:

- Description of your concrete strategy to achieve the required fault tolerance.
- Network topology and choice of protocols.
- If you choose a programming language due to a design paradigm, tell us why.
- If you have started planning to divide the system into modules, please contribute.

You may style the description as you want, using text, use cases, sequence charts, scenarios, etc. Hand drawings are acceptable if they are clear and readable. You can use UML (Unified Modeling Language), but we do not expect you to follow any standard.

After having read the design description, we want to get the impression that you have understood the challenges and that you are on a viable, and not too complex, road to solving them. Specifically, we should get an understanding of how you aim to deal with

- The button light contract, network unreliability, spontaneous crashes, and unscheduled restarts.
- A normal operation hall or cab call from the button press to the opening of the door.
- The network disconnects a node with active hall requests (detection -> take-over).
- A node with an active cab order crashes.
- All the above in the presence of network packet loss.

We are prepared to extrapolate to get these understandings: Give us what we need to do so.

Evaluation:

We will evaluate your designs and give you feedback. We don't expect that you present a complete solution in this short document, and the evaluation criteria lean more toward "effort" than "solution."