Consent

Greetings, I am a mechanical engineering student from ETH Zurich, Switzerland currently writing my Master's thesis here at Tufts University in Massachusetts, the United States.

As part of my master's thesis I am developing the Smart System Platform (SSP), which is building up on the existing Smart Motors Project and aims to develop it further for more wide-spread application. The goal is to develop an educational platform which can not only be used to teach certain science and engineering principles intuitively out of the box, but also to enable educators and academia to build lessons and prototype using said platform.
As you are either participating in the SSP-Hackathon or have used some of the developed tools in a different context, I would like to ask you some questions for my research to gather feedback on said tools for future improvement.
The survey by itself will take about five minutes of your time. If you are participating in the Hackathon, you will first be given a brief introduction about the SSP, you will then be asked to split into groups and develop a small project using the SSP hardware and development tools, after which you will then present your project to the group and share some feedback. Afterwards you will then be given some time to filling out this survey. The Hackathon including this survey will take 60 minutes of your time.

It’s your decision, and there are no consequences to not participating. I further don’t anticipate any major risks to participation. If at any time during the form you do not want to answer a question, you can skip it. If at any time you want to stop participating, or you don’t want to start at all, you may feel free to quit the survey. Before submitting the survey, none of the information will be saved.

The content of this survey may be used in publications or presentations, however identifiable information about you will not be shared beyond the research team. Your privacy is our top priority, but there is always a slight chance that someone could find out about your participation in this survey. People responsible for monitoring this research may be able to access the data. This includes the Tufts University IRB. Below you can find my contact information and the contact information of the research oversight board at Tufts, the Tufts SBER IRB, if you need to get in touch about this research at any point in the future.

If you agree and would like to consent to participate in this Hackathon and/or questionnaire regarding the experience using the Smart System Platform, please indicate so below.

Do you consent to participate?

◯ I consent

For questions or concerns about the research study or procedures, or if you need to notify someone of a complaint, please contact the Tufts research team.

PI Contact Info:

Nicolas Triebold
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Center for Engineering Education and Outreach
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Tufts University
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Phone number: 617-627-2882

If you have questions or concerns about your rights as a research participant, or if you would like to discuss the study with someone outside of the research team, contact the Tufts SBER IRB.

Tufts SBER IRB Contact Info:

Tufts University
Social Behavioral & Educational Research
Institutional Review Board (SBER IRB)
75 Kneeland Street, 8th Floor | Boston, MA 02111
Telephone: 617-627-8804
Email: sber@tufts.edu Website:
http://viceprovost.tufts.edu/sberirb/

Thank you for your participation!

If you are participating in the hackathon, please focus your attention back to the introductory presentation.
You may continue the survey after the main part of the hackathon, once you are instructed to do so.

Participant Classification

We would like to gather some very general information about you and your familiarity with education and technology.

What best describes your current position?

- ◯ Undergraduate Student
- ◯ Graduate Student
- ◯ Post-Doc / Academic Staff
- ◯ Faculty
- ◯ Other: [ ]

How familiar are you with educational science?

- ◯ I'm an expert
- ◯ I'm advanced
- ◯ I'm proficient
- ◯ I'm somewhat familiar
- ◯ I'm not familiar at all

How familiar are you with educational technology? (i.e. educational tools etc.)

- ◯ I'm an expert
- ◯ I'm advanced
- ◯ I'm proficient
- ◯ I'm somewhat familiar
- ◯ I'm not familiar at all

How familiar are you with science and technology? (Engineering, Digital, Robotics, Micro-processors and other)

- ◯ I'm an expert
- ◯ I'm advanced
- ◯ I'm proficient
- ◯ I'm somewhat familiar
- ◯ I'm not familiar at all

Please rate your proficiency in the following scientific fields, topics and technologies

	I'm an expert	I'm advanced	I'm proficient	I'm somewhat familiar	I'm not familiar at all
Educational Science	○	○	○	○	○
Educational Technology	○	○	○	○	○
Science & Technology	○	○	○	○	○
Computer Science	○	○	○	○	○
Digital Technology	○	○	○	○	○
Electrical Engineering	○	○	○	○	○
Mechanical Engineering	○	○	○	○	○
Robotics	○	○	○	○	○
Other:	○	○	○	○	○

What field are you active and/or interested in?

- ○ Please specify:
- ○ Please specify:
- ○ Please specify:
- ○ Please specify:
- ○ Please specify any other:

Activity Feedback

This section of question focuses on the hackathon and/or project you have developed with the aid of the Smart System Platform Development Tools and/or other capabilities and components. The question aims to gather feedback on the tools in context with your project/idea/activity.

Did you participate in the Smart System Platform hackathon?

- ◯ Yes
- ◯ No

Please describe what your project was about:

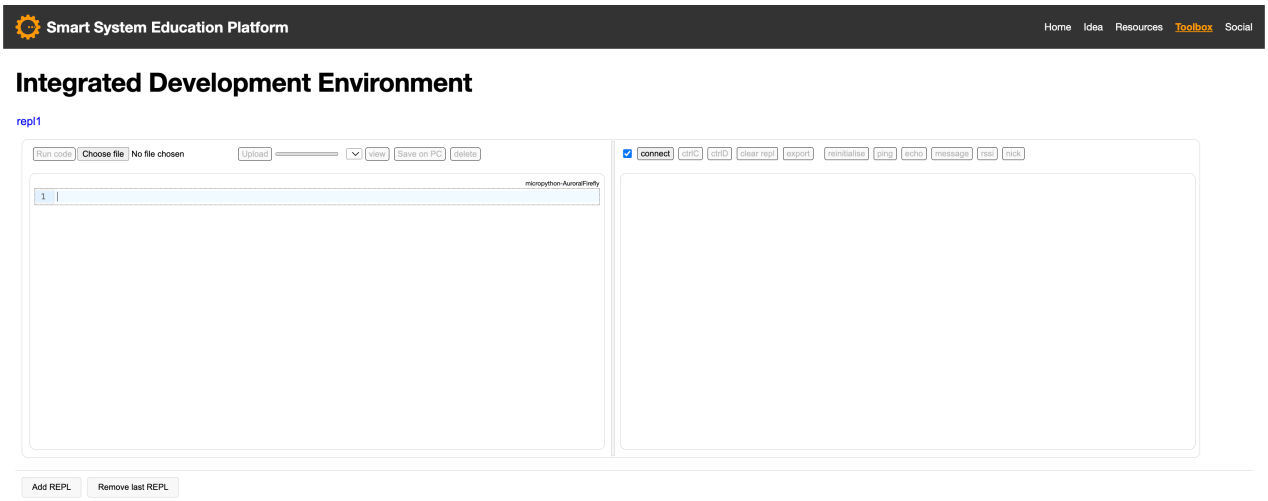
Which components of the Smart System Platform did you use in your project?

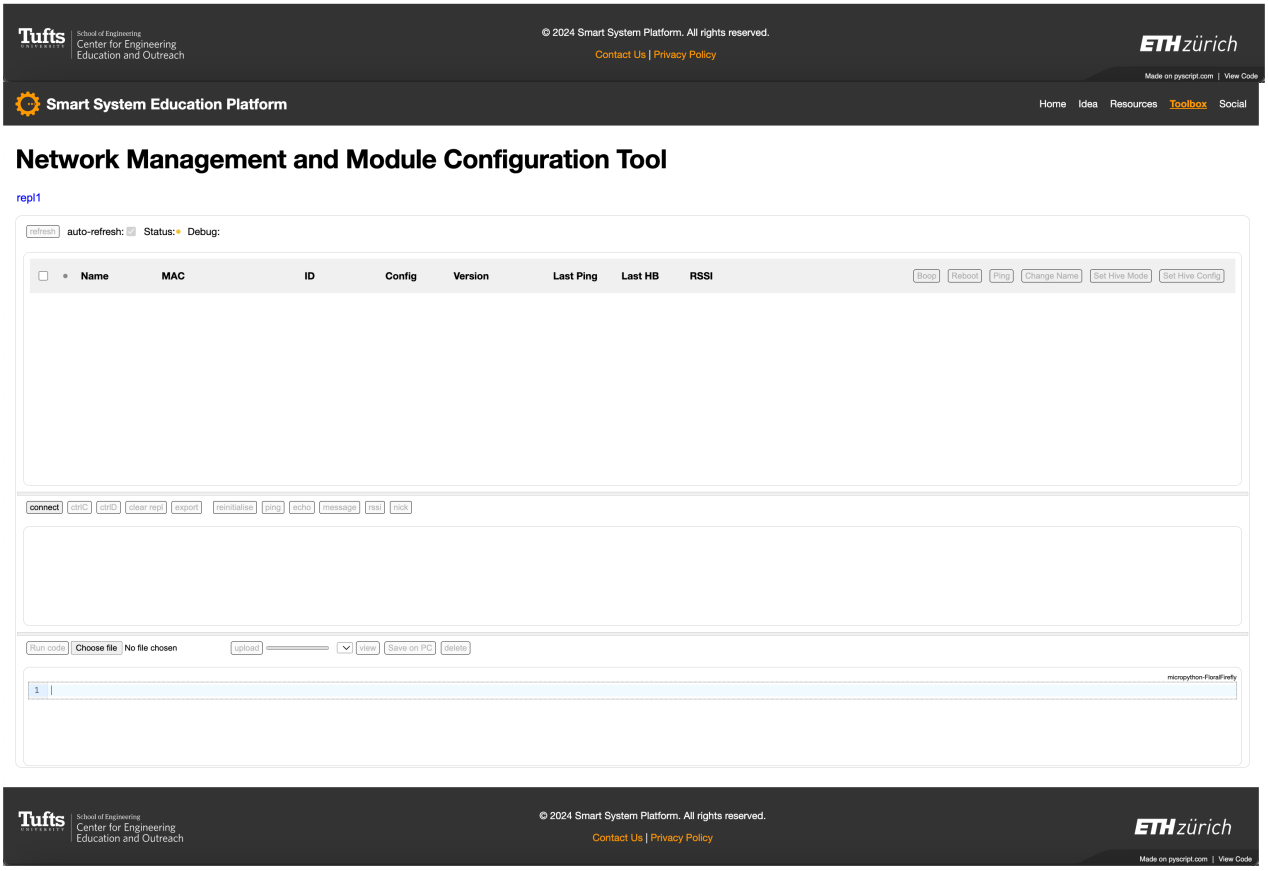
- ☐ Smart Module Hardware (Smart Motor, Dahal Board, etc.)
- ☐ Smart System Website (Guide, Specifications, other support material)
- ☐ Smart System Platform Github page
- ☐ Software (Networking library, etc.)
- ☐ Custom Web-IDE
- ☐ Network Management and Module Configuration Tool

In what way did the above components aid in the development of your project?

Did you have any other ideas on what could be done using the Smart System Platform and its Networking Capabilities?

The next questions focus on the custom web IDE and the Network Management and Module Configuration Tool, referred to as the Smart System Development and Management Tools, depicted below.


Smart System Education Platform
Home Idea Resources Toolbox Social
Integrated Development Environment
repl1
Run code Choose file No file chosen Upload view Save on PC delete
micropython-AuroralFirefly
1
connect ctrlC ctrlD clear repl export reinitialise ping echo message rssi nick
Add REPL
Remove last REPL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ETH zürich
Made on pyscript.com | View Code
Smart System Education Platform
Home Idea Resources Toolbox Social
Network Management and Module Configuration Tool
repl1
refresh auto-refresh: Status: Debug:
Name MAC ID Config Version Last Ping Last HB RSSI
Boop Reboot Ping Change Name Set Hive Mode Set Hive Config
connect ctrlC ctrlD clear repl export reinitialise ping echo message rssi nick
Run code Choose file No file chosen upload view Save on PC delete
micropython-FloralFirefly
1
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ETH zürich
Made on pyscript.com | View Code

Please rate the following aspects for the custom web IDE:

	Perfect	Good	Neither Good nor Bad	Bad	Very Bad
Usability	○	○	○	○	○
Accessibility	○	○	○	○	○
Performance	○	○	○	○	○
Features	○	○	○	○	○

Please rate the following aspects for the Network Management and Module Configuration Tool:

	Perfect	Good	Neither Good nor Bad	Bad	Very Bad
Usability	○	○	○	○	○
Accessibility	○	○	○	○	○
Performance	○	○	○	○	○
Features	○	○	○	○	○

Please rate the following aspects for the Website in general:

	Perfect	Good	Neither Good nor Bad	Bad	Very Bad
Usability	○	○	○	○	○
Accessibility	○	○	○	○	○
Performance	○	○	○	○	○
Features	○	○	○	○	○

I found the Smart System Development Tools to be an aid/asset in developing an activity/project:

- ○ Fully agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Fully disagree

In what way did you find the development tools helpful or not?

The Smart System Development Tools offered all the necessary capabilities to develop my activity or project.

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

What capabilities or improvements would you like?

The Smart System Development Tools enabled me to develop my project, which I otherwise would not have been able to do as efficiently.

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

Were you able to complete and design your project without issues using the provided tools?

- ◯ Yes
- ◯ No

What limitations did you encounter?

Platform Tool Feedback

This section focuses on feedback for the Smart System Platform development tools in a usability fashion, as well as for the Smart System Platform in general.

Do you understand the goal and design of the Smart System Platform?

- ◯ Yes
- ◯ No

The architecture and system design of the Smart System Platform as a system is logical and intuitive:

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

The design and layout of the Smart System Platform website as a whole is intuitive and easy to use:

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

The Smart System Platform website contains all the necessary information:

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

Was there any information that you were missing?

The design and layout of the Smart System Platform Development Tool page is intuitive and easy to use:

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

The Smart System Platform user guide adequately introduced you to the system and provided all the necessary information and guidance:

- ◯ Fully agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Fully disagree

Was there anything missing or that could be improved in the guide?