

# Final Project Description

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- 1) A list of all the sections you plan to include in your paper

## Abstract

1. Introduction
  1. Research question, Motivation and Hypothesis
  2. Related tactile rendering tool
2. Method
  1. Tactile Echoes
  2. Workshop Flow and Questionnaires'
3. Result
  1. Result of Questionnaires'
  2. Their accomplishment
4. Discussion
  1. Discussion from the results.
  2. Limitation
  3. Future work
5. Conclusion

- 2) A set of bullet points for the primary points you plan to cover in each section. This might include a list of the specific tools you are focusing on.

## - Introduction:

### Research question:

- Does Tactile Echoes work for the non-haptic specialists ((designer) students) to help them to render tactile texture?
- What application can be created with it by non-haptic specialists?

## Motivation and Hypothesis

- Tactile texture rendering is very difficult so, non-specialist of haptic need to learn special methods and computer language to render tactile texture. Here, in the lab, we developed the tactile effector device that allows the non-specialist of haptics to render various tactile texture. With Tactile Echoes, student(designer) can create application with tactile effect easier than other devices.

## - Method:

### Tactile Echoes

- Configuration of Tactile Echoes.

### Workshop Flow

- Explain the workshop flow and questions that we asked the participants.

- Result: I will show the result of the question and their made application concept.

- 3) A description of the figures (images, diagrams, visualizations etc.) you plan to include. You may also choose to include rough sketches of what you envision these might look like.

figures:

Configuration of Tactile Echoes, Concept of applications

- 4) Any supplementary materials you've developed as a part of your final project

#### Workshop Flow

1. Ice break (Talking what tactile sensation of products do you like?)  
They will be aware of the tactile sensation around the environment.
2. Introduce the Tactile Echoes
3. Session1: Create own tactile sensation with Tactile Echoes.  
- Participants adjust the parameter of the Tactile Echoes.
4. Session2: Create the concept of application with Tactile Echoes.  
- Providing the set of parameters to generate evocative tactile sensation.  
Drawing concept picture or paper prototyping
5. Presentation and short demonstrations.
6. Reflection

#### Questionnaire (Before / After session 1 and 2)

- Background, age, dominant hand?

1. I can render tactile sensation with tactile rendering. (Likert scale 1-7)
2. I know the Haptic technology. (Likert scale 1-7)
3. I am familiar with tactile rendering. (Likert scale 1-7)
4. I have the experience to render tactile texture with the device. (Yes or No)

#### Questionnaire (After session 1 and 2)

5. How do you feel today's activity? (free comment)
6. Performance of Tactile Echoes (Likert scale 1-7)
  - a. Tactile Echoes provide a tactile sensation based on hand interaction.
  - b. It is easy to introduce tactile effect in the application.
  - c. Designing tactile effects are easy with Tactile Echoes.
  - d. Tactile Echoes expand the idea of making the application.
7. Usability of Tactile Echoes (Likert scale 1-7)
  - a. User interface for the Tactile Echoes are easy to understand.
  - b. The parameter change of each effector was easy.
  - c. It was easy to create the desired tactile stimuli.
8. Do you have any difficulties when you make application concept with Tactile Echoes (free comment)?
9. Any points that you want to improve in Tactile Echoes? (free comment)