

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !



family name Chu
initials Y.C given name Yuxin
student number 4986024
street & no. _____
zipcode & city _____
country _____
phone _____
email _____

Your master programme (only select the options that apply to you):

IDE master(s): ☐ IPD ☒ Dfl ☐ SPD

2nd non-IDE master: _____

individual programme: _____ (give date of approval)

honours programme: ☐ Honours Programme Master

specialisation / annotation: ☐ Medisign

☐ Tech. in Sustainable Design

☐ Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair Arnold Vermeeren dept. / section: HCD/HICD
** mentor Sepideh Mesbah dept. / section: SDE/KIND
2nd mentor _____
organisation: _____
city: _____ country: _____

comments
(optional)

|||

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..



Second mentor only applies in case the assignment is hosted by an external organisation.



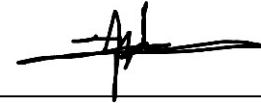
Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Arnold Vermeerendate 10 - 06 - 2020

signature


CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 6 ECOf which, taking the conditional requirements into account, can be part of the exam programme 6 EC

List of electives obtained before the third semester without approval of the BoE

☒ YES all 1st year master courses passed

☐ NO missing 1st year master courses are:

J. J. de Bruin, SPA-IO**17-06-2020****JdB**

name

date

signature

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

Content: ☒ APPROVED ☐ NOT APPROVEDProcedure: ☒ APPROVED ☐ NOT APPROVED

comments

name Monique von Morgendate 06 - 07 - 2020

signature


Requirement elicitation of visually impaired users of visual information

project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 10 - 06 - 202002 - 12 - 2020

end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

| Context |

Nowadays images are increasingly used for communication both in the traditional and new media. They serve an important complementary role together with the textual narration, supporting and facilitating the perception of information. But images used not to be accessible to people with visual impairments due to issues of cost, scalability, timeliness and quality, which engender limits on their reading experience. However, recent works on automatic image description and captioning shows possibilities to tackle this issue with the help of crowd computing technique. To develop such an unprecedented content processing system for visually impaired readers, a deep understanding of the requirements on image description, from the perspective of the target group, is an essential first step. In this project, a research through design approach will be used to develop new knowledge about the actual requirements of an image description system. The outcome of this project will be taken as reference for the further technical development of the image description system, which will presumably deploy automated solutions combined with crowd computing techniques.

| Stakeholders |

This graduation project is part of the large project "Efficient and Effective Visual Content Description for Visually Impaired Users", which is conducted in the context of the newly created Future Libraries Lab. The Future Libraries Lab is a research and innovation collaboration between the Delft University of Technology and the Koninklijke Bibliotheek. It aims at conceiving and prototyping possible futures for public libraries by combining design approaches and methods with state-of-the-art data science and artificial intelligence tools.

Due to the complex context of this graduation project, various stakeholders are included, as is follows.

- Visually impaired users: Everyone should have equal access to public knowledge and information. The proposed accessory image description system is expected to better satisfy the information needs of the visually impaired people.
- Koninklijke Bibliotheek (National Library): With the outcome of this project, KB can provide more inclusive service and made its resources accessible to more people, contributing to better social well-being and fairness.
- Prototype developer: The outcome of this project can clarify the requirement and provide a promising direction for system under development.

(indirect stakeholder)

- Participants for crowd computing: A clear guidance for the participants of crowd computing, which probably is based on the outcome of this project, is essential for the operation of the processing system.
- Social organization which provide supports for visually impaired people

space available for images / figures on next page

introduction (continued): space for images

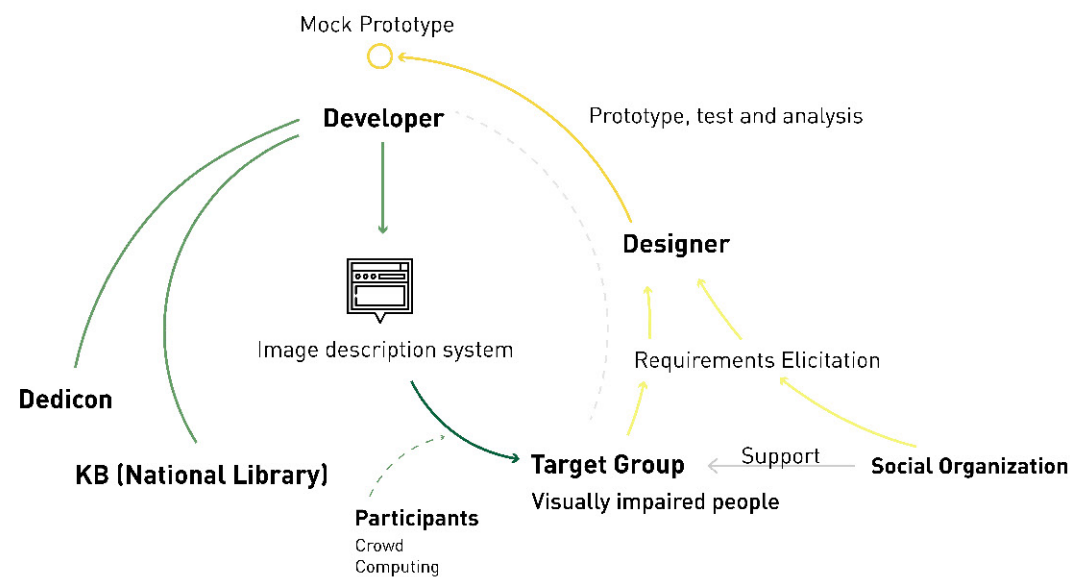


image / figure 1: Project Overview: Stakeholders

TO PLACE YOUR IMAGE IN THIS AREA:

- **SAVE THIS DOCUMENT TO YOUR COMPUTER AND OPEN IT IN ADOBE READER**
- **CLICK AREA TO PLACE IMAGE / FIGURE**

PLEASE NOTE:

- **IMAGE WILL SCALE TO FIT AUTOMATICALLY**
- **NATIVE IMAGE RATIO IS 16:10**
- **IF YOU EXPERIENCE PROBLEMS IN UPLOADING, CONVERT IMAGE TO PDF AND TRY AGAIN**

image / figure 2:

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

This project aims to develop a deep understanding of the requirements of images description from the perspective of visually impaired users.

The first problem within this project will be the complexity of the target group. To be specific, there are different types of visual impairment (such as congenital visual impairment and acquired visual impairment), which will result in different perceptions of the image content and different requirements when reading. And thus, sufficient desk research is crucial to learn about the target group and what kind of visual impairments will be within the focus and scope of this graduation project.

Based on my choice of the visual impairment types, this project will focus on the elicitation of their information requirements on image description, which is the key problem of this project. The development of image description technology provides the possibility for visually impaired people to read pictures. However, how to describe pictures to satisfy their needs is unknown. Should all images be described? How detailed the descriptions should be? What kind of elements is important to be described? To approach these problems, context mapping techniques will be deployed to gain insights and build assumptions. Then prototypes will be built to verify these assumptions and draw conclusions.

In addition, there are several minor issues I need to deal with during the progress:

- Build a clear understanding of the relevant technical fields to ensure a clear and feasible final prototype
- Adjust normal user research techniques to help the target group overcome communication problems and better express ideas
- Decide on the medium of image description to ensure it work effectively

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Develop a demonstrator to communicate the visually impaired people's requirements and their preferable interaction mode for a technological image description system

| Possible Research Activity |

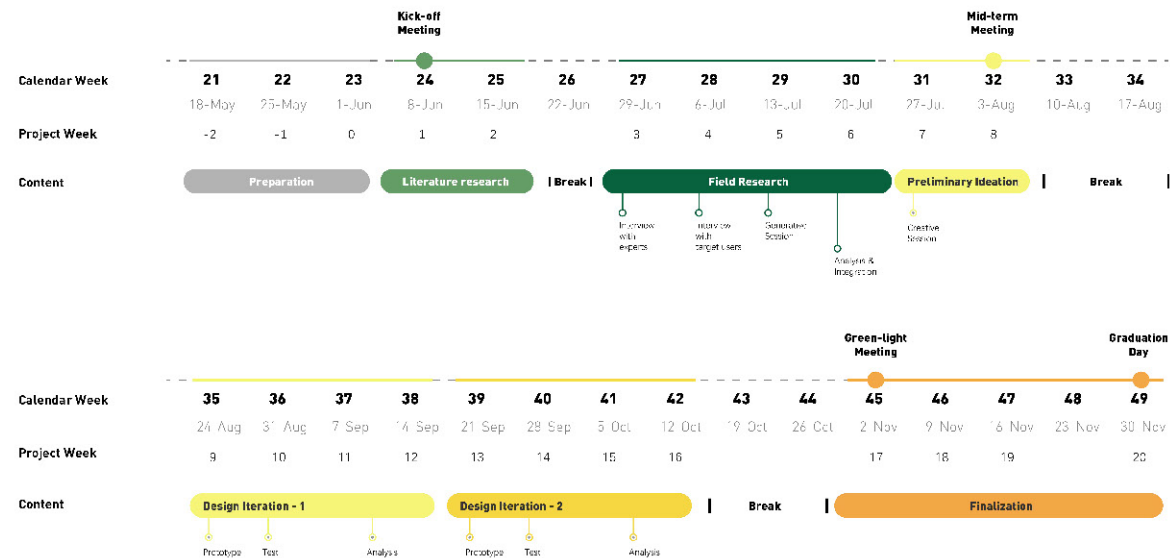
In the beginning, desk research will focus on overview of different groups of visually impaired people, their mainly reading materials, the potential relationships between text and images in these materials. Then some user research will be conducted to learn about the reading activities of the target group in daily life, the problems encountered, and their corresponding demands. Reading scenarios will be built in this phase. According to the results of the research, the design scope will be narrowed down to a specific type of visually impaired group (and probably a specific type of reading content). At the midterm meeting, based on the understanding of context, a design brief will be proposed, which will contain a more specific design goal, interaction vision, and testable targets.

In the design phase, two rounds of iteration will be conducted. In the first round, based on insights and inferences at the research stage, several prototypes will be developed to represent different interaction modes. Then I will proceed with some user tests and analyze the collected data based on the testable targets I set. According to the analysis results, different prototypes will eventually be combined into one. Another round of tests and analyses will be done for evaluation and recommendation.

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 10 - 6 - 2020 2 - 12 - 2020 end date



| Calendar Week 21(18 May) to 23 (1 June) |
Preparation of project brief and kick-off meeting

| Calendar Week 24(8 June) to 25 (15 June) |
Kick-off meeting & Literature Research

| Calendar Week 27(29 June) to 30 (20 July) |
Field Research

| Calendar Week 31(27 July) to 32 (3 Aug) |
Preliminary Ideation & Mid-term meeting
Design brief (Design goal / interaction Vision/ Testable target)

| Calendar Week 35(24 Aug) to 38 (14 Sep) |
Design Iteration -1

| Calendar Week 39(21 Sep) to 42 (12 Oct) |
Design Iteration -2

| Calendar Week 45(2 Nov) to 49 (30 Nov) |
Green light meeting & Finalization & Graduation Day

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... Stick to no more than five ambitions.

| Motivation & Competence |

I have long been interested in the topic of how emerging technology, especially machine learning (ML), can be combined with a design mindset to contribute to people's well-being. In the past year, I have participated in several courses relevant to artificial intelligence in the faculty/by myself. This project provides the opportunity to participate the development of a practical implementation of ML, which I have always been looking for.

| About Competence |

Like most Dfl students I have already learned plenty of design skills and methodologies from the courses I have taken. To be specific, this project will be conducted in a "research through design" manner. And I have been familiar with this research method through the course Research Methodology and research electives. Moreover, since the target group in this project is one I totally unfamiliar with, probably participatory design will be taken as my main method to approach my design goal and a lot of context mapping will be included. I have learned a lot in this field from courses such as C&C, EI and CF courses. Last but not least, my experience with speculative design from my research electives may be helpful in this project since there is few existing solutions.

| Learning Goal |

Communication Skills:

- How to communicate with and coordinate different stakeholders.
- How to empathize with a target group that I am unfamiliar with
- Communication will be one of the main challenges for me in this project.

I am not a person good at communication so far, but this projects does require plenty of communication among different stakeholders. I hope I will gradually improve myself through this project.

Design skills:

- Participatory design: how to conduct context mapping with my target group (visually impaired people)

Depth knowledge:

- About Visual impaired people and their requirements about image description

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.