ENO

Home Inspection Assistant

Process Book

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Assignment 3: CUI

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OVERVIEW

We were assigned the task of designing a Conversational / Vocal User Interface (or CUI) for the domain of mortgage lending.

From our domain research, we were able to discover the importance of the home inspection process and identify the key pain points for home inspectors.

We then ideated and created scenarios to design a conversational interface that would solve these pain points and bring the most value for the stakeholders. Furthermore, we created models for the interface and designed the conversations.

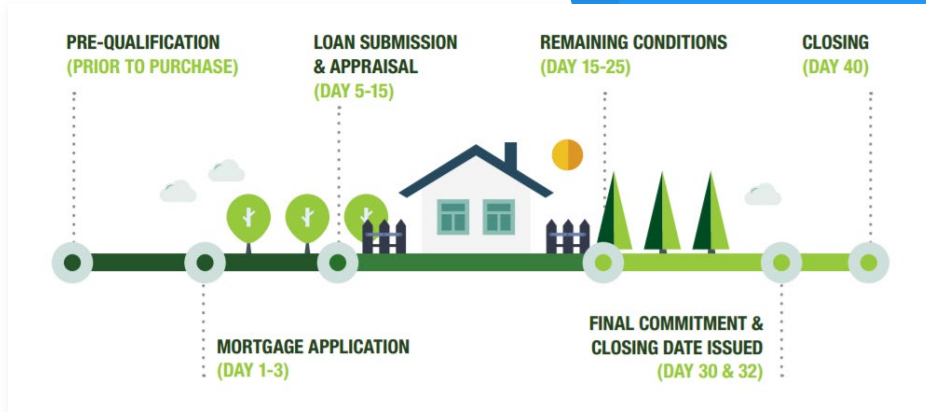Lastly, we demonstrated the value created through a concept video.

RESEARCH

DOMAIN RESEARCH

We started our domain research by trying to learn as much as possible about the mortgage lending process.

We learned that the mortgage lending process can be really complex. The process includes pre - approval, inspection/appraisal, and closing the mortgage.


PRE-QUALIFICATION
(PRIOR TO PURCHASE)

LOAN SUBMISSION
& APPRAISAL
(DAY 5-15)

REMAINING CONDITIONS
(DAY 15-25)

CLOSING
(DAY 40)

MORTGAGE APPLICATION
(DAY 1-3)

FINAL COMMITMENT &
CLOSING DATE ISSUED
(DAY 30 & 32)

STAKEHOLDERS

▸ Lender
  ▹ Wants information on buyers
  ▹ Buyers must be able to pay back loan
▸ Seller
  ▹ Wants buyers to purchase property
  ▹ Must have their property inspected
▸ Buyer
  ▹ Needs information on loan
  ▹ Typically visits property in person
▸ Home/property inspector
  ▹ Checks that property is sound in -person
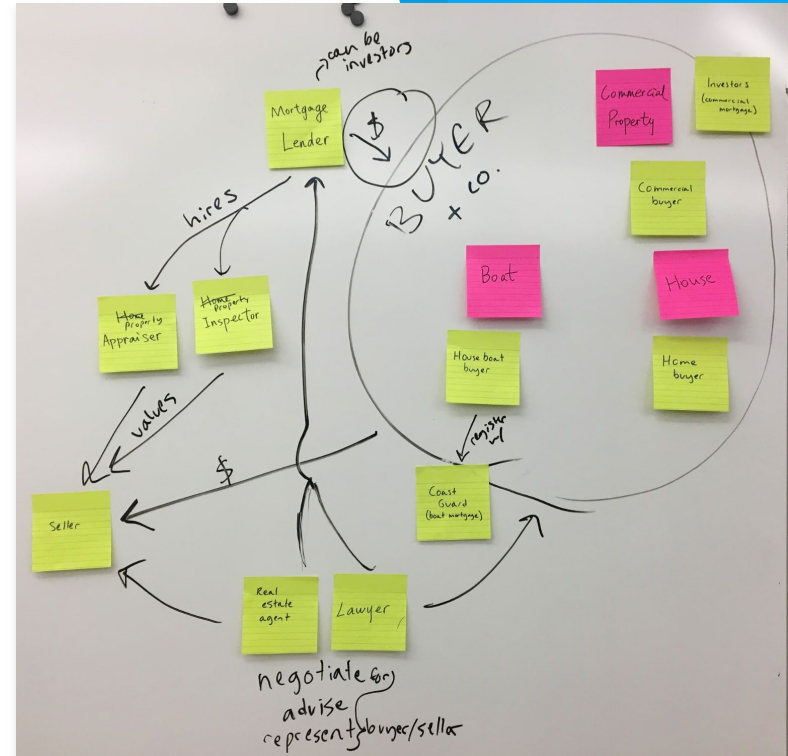
CONCEPT MAPPING

In our concept map, we focused less on mapping and more on visualizing and collecting the contexts, processes, and trends associated with mortgage lending, both to get a better grasp on our understanding of the domain and to find CUI -specific opportunities (for example, a CUI could be more useful during a walk -through home inspection than while filling out paperwork in an office).
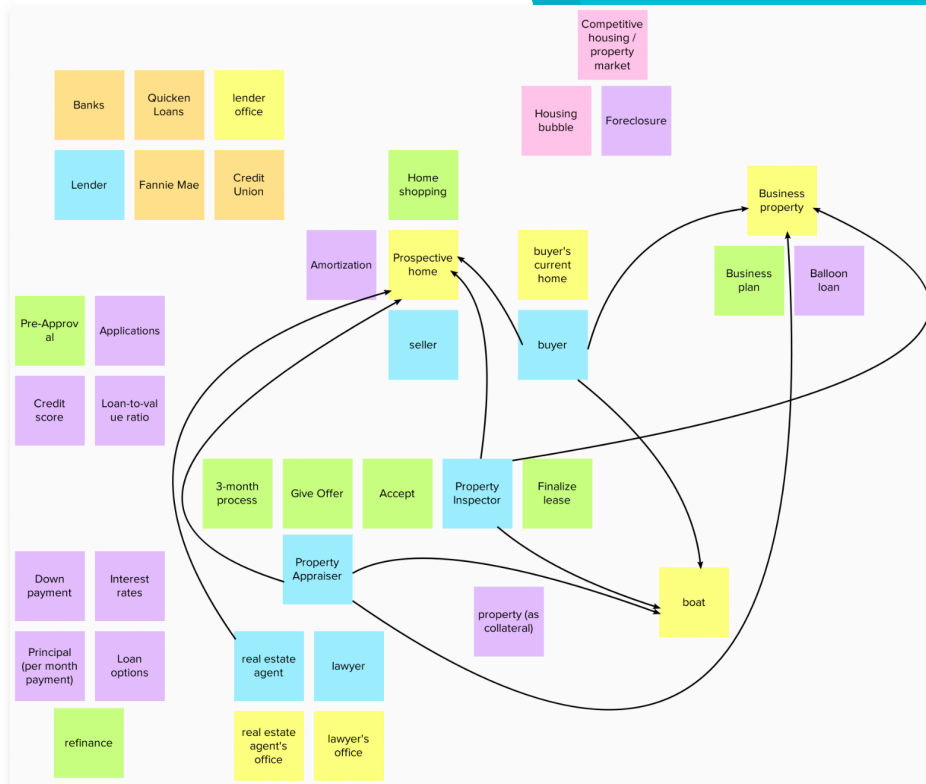
COMPETITIVE ANALYSIS

Many of the mortgage lending services did not have a conversational interface on their website.

Most did have an online screening process and allowed users to chat with human assistants.

However many banks, such as Wells Fargo, Capital One, and Bank of America, have began to implement chatbots to handle basic tasks such as balance inquiry, bank account details, and loan queries.
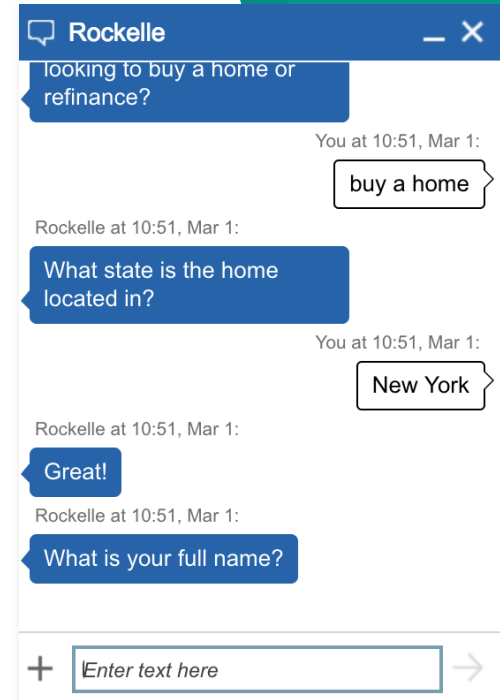
IDEATION

SCENARIOS

We each created 5 scenarios to explore different circumstances and brainstorm a variety of different ideas to use CUIs within the domain of mortgage lending.

Sample Scenarios:

1. A prospective home buyer is filling out paperwork for her mortgage, and uses a CUI to ask questions about interest rates, insurance, fees, and other questions without putting down her papers or pens. The CUI answers her questions and gives advice like a knowledgeable lawyer, at a fraction of the cost and with much more patience.

2. The banker is trying to find what the best loan option is for his new user. However, he is interacting with many different clients and they all have unique complications. The CUI is able help him stay organized and provide him with the best relevant information when needed.

Home Inspection Scenario

Scenario: While inspecting a house, Magnus has to get on his back and crawl under the kitchen sink to check the pipes. He leaves his CUI on the floor outside, which is a good thing, because the pipes are dripping. He tells it to note that the pipes are leaking and to deduct a point from the house assessment.

We choose this scenario to further develop because it really took advantage of the unique capabilities of a conversational interface. For example, being hands -free is really important for home inspectors because they are constantly using their hands to take notes or inspect something. Furthermore, from our competitive analysis, we knew that this domain had not been explored before.

VALUE CREATION

In designing a home inspection CUI, we enumerated four key values it would create for our user.

Hands-free functions: Home inspectors need to constantly use their hands, ex: balancing on a roof, crawling under to check the foundation, checking under the sink, etc. With the CUI, the home inspector is able to complete tasks such as contacting lenders or tracking relevant information with just their voice.

Providing necessary information: Home inspectors have to know a lot of different things and it can be challenging to have all that information perfectly memorized. The CUI can answer certain questions home inspectors might have and look up certain information for them. It can also integrate with the built in camera in the smartphones to analyze certain images.

Automating aspects of the reporting process: Home inspectors need to complete a report of the the inspection. The CUI would be able to help fill out the report as the inspection is happening and reduce the workload for the home inspector. Especially since home inspectors are often needed in short notice, the CUI help increase efficiency of their work process and meet demanding deadlines.

Saving time: Home inspectors need to collect different information about the house and store this information. Rather than writing down the information, the CUI can save home inspectors a lot of time by taking the notes for them.

MODELS

After deciding on our problem space and key values, we visualized how a the CUI interacts with the user and processes their input through a series of models of   key interactions   . In each model, we visualized how the CUI moves from the **pre-attentive**   to the **attentive**   state after hearing its name (called Bob in this iteration). We then mapped user **utterances**   to **intents** , and mapped those intents to the CUI's **response** through utterance or action.

We were sure to model how the CUI would handle **errors** such as mapping an utterance to the wrong intent, and also modeled the variety of utterances both user and CUI can give to map to the same intent or action. The models are shared on the following pages; click them to view the original models in full.
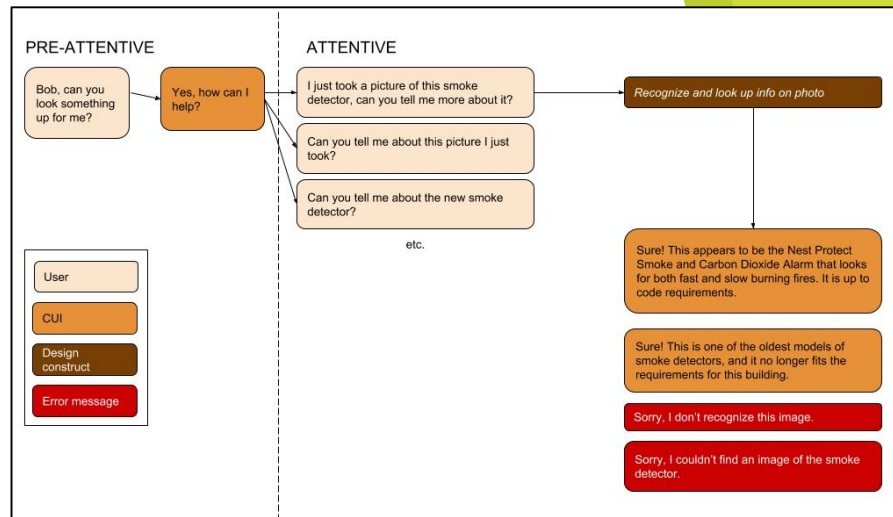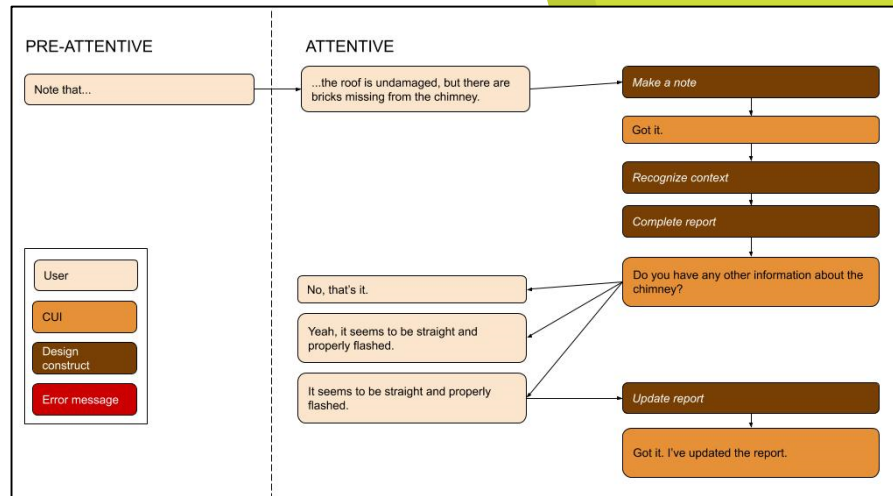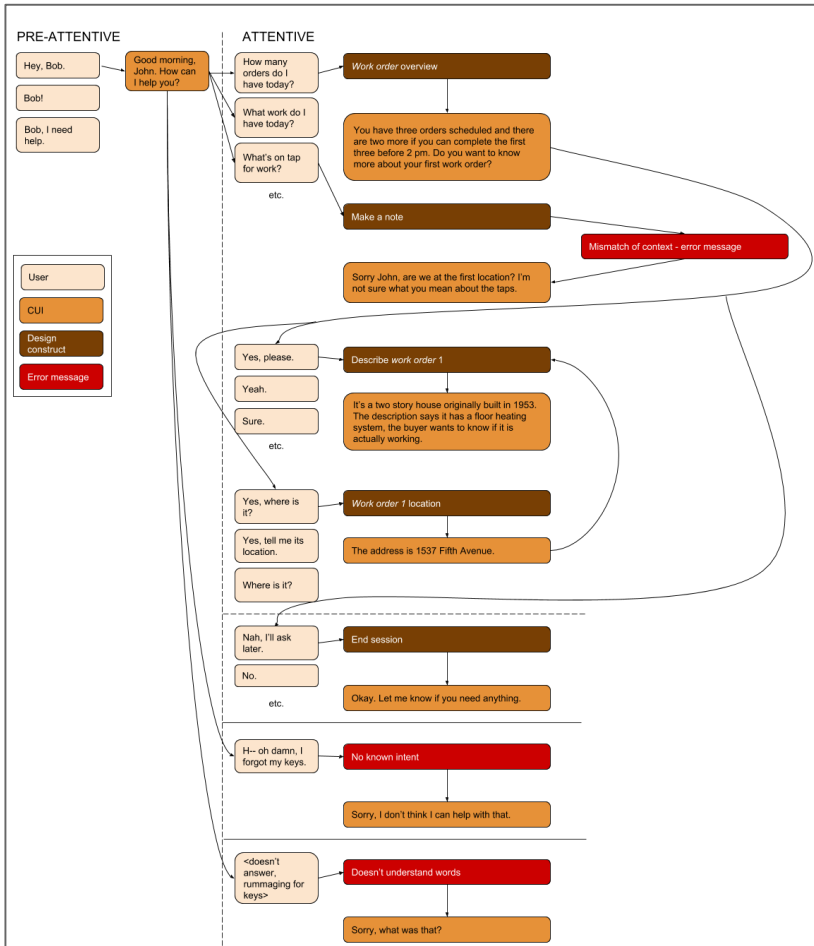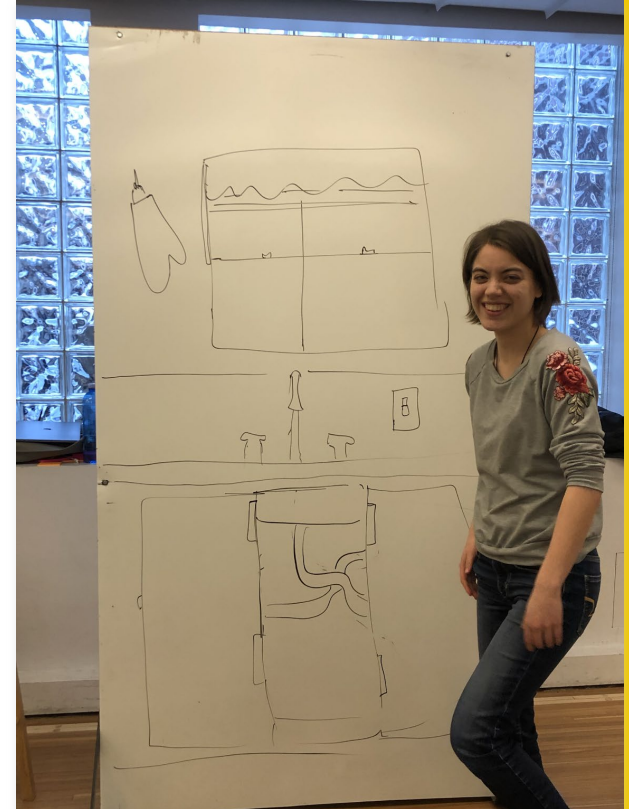
PROTOTYPING

EXPERIENCE PROTOTYPING

After devising our models of key exchanges, we engaged in **experience prototyping** to quickly test our current design. In experience prototyping, one of our team members acted as the CUI and one of our classmates acted as the home inspector user. We has our "user" act out the inspection of a kitchen, and found that they used the CUI to take notes on the condition of the pipes, contact their colleagues, and as a source of information on the home.

The experience prototyping confirmed that home inspections are a perfect scenario to take advantage of a CUI, and also inspired us to add **location tracking** as a feature to the CUI based on feedback from our classmates. We also changed the CUI's name from Bob to **Eno**, to make it more distinct from an actual name (that a home inspector might also have).

CONCEPT VIDEO SKETCH

After the experience prototyping, we moved onto developing a concept video to show Eno's key **use cases** and how it can help the home inspector.

From post-its sketch to scenario design, from script writing to actual recording.
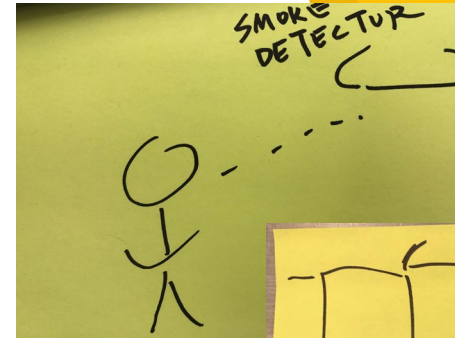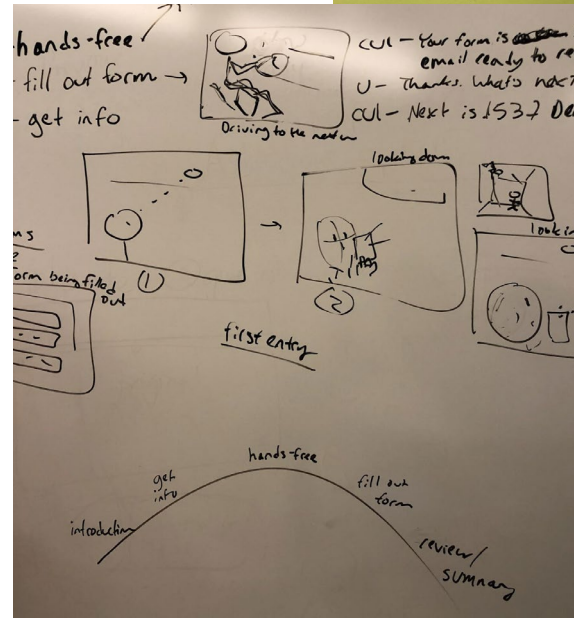
CONCEPT VIDEO DEVELOPMENT

Narrator: Meet John, a home inspector. He doesn't have an easy job.

Narrator: As a home inspector, there's a lot he has to know. He has to understand all the subsystems of a home and needs to constantly stay up-to-date on the latest home features.
- John looks up at a smoke detector while he's on the phone and says "Hey Charlie, there's this fancy new smoke detector in this house that I haven't seen before… do you know if these new ones are up to code?"

Narrator: He's always taking notes on the house, switching back and forth between inspecting and writing…
    Close-up on hands as he takes gloves off to write in binder then put them back on.

Narrator: Sometimes even in dangerous situations.
- Crouched on a roof, trying to maintain balance as he puts the binder on one knee and holds it there with one hand and writes in it with the other.

Narrator: And at the end of the day, John still rushes to fill out the long inspection forms for his clients. These trivial parts make his job time consuming and exhausting.
- John sitting at a table, looking back and forth at his notes as he fills out a form. He looks tired and frustrated.

* Show Eno!
Narrator: Meet Eno, John's new home inspection assistant.
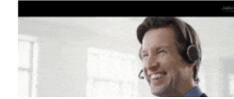
In the video, we set "John", the home inspector as the only character. We really want to emphasize how his interaction with Eno would ease the process of inspections. With a script written in advance, we went recording in an apartment, at a roadside, and on a rooftop.
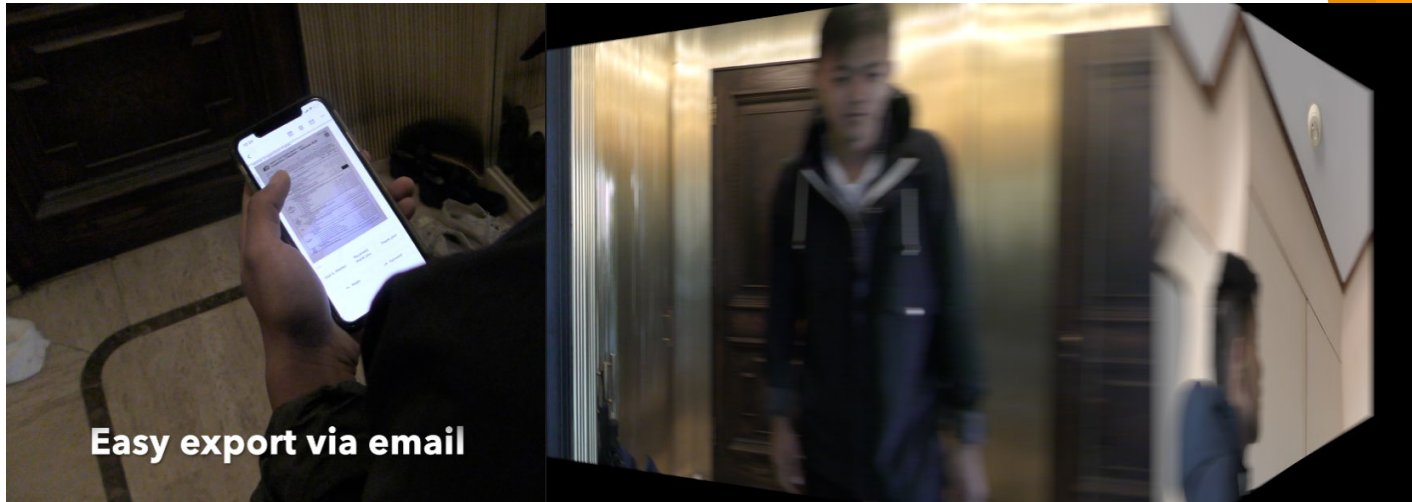
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VIDEO EDITING

We shared our initial concept video sketch with our classmates and revised it based on their feedback. To make the "before Eno" and "after Eno" sections clearer, we made the following changes:

- Recap the ordinary inspection process for non-inspector audience
- Use different color filters and BGMs to avoid confusion between the two conditions

We also got feedback that the features and scenarios are sometimes unclear, so we made the following edits.

▸ To ensure the best understanding, we use subtitles to highlight the corresponding features
▸ We use transition animations to signal the switch of use cases.

Easy export via email

FINAL CONCEPT

CONCEPT VIDEO

Or Click Here to watch

Highlighted **Features** In Video

GPS tracking

Domain Knowledge

Hands -free

Auto form - filling

Form export via Email

CREDITS

Thanks to our IxDS instructors and classmates who have given amazing feedbacks to our project.

Special thanks to all the people who made and released these awesome resources for free:

▸ Presentation template by SlidesCarnival