

Guiding Tool for RTO Applicants

Interaction Design | Project 2 | Report

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Interaction Design Student

M.Des 2015-2017

Guide

Prof. Jayesh Pillai



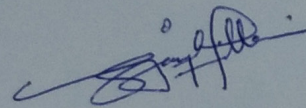
Industrial Design Center

Indian Institute of Technology Bombay, Mumbai.

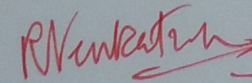
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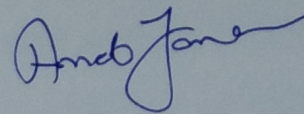
The project titled 'Guiding Tool for RTO Applicant' by Ajinkyaraj More, is approved for partial fulfillment of the requirement for the degree of 'Master of Design' in Interaction Design.



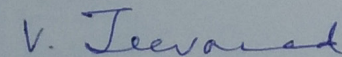
Guide



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I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/ source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.



Ajinkyaraj More
Industrial Design Centre,
Indian Institute of Technology,
Bombay
29th Nov, 2016

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Most importantly, I would like to thank my parents, my motivation, for supporting me without any expectations.

Abstract

The government sectors in india have an exhaustive procedure for obtaining various essential government documents like Driving License, Marriage Certificate, Birth Certificate etc. To assist through all these complex processes, the common people do not have an online platform where they can get all the information in one go. The lack of proper guidelines causes an overuse of time and energy for a common man who is in search of these procedures. Hence, a large amount of money is spent on mediators further worsening the situation. Information architecture is not structured properly on the existing portals and because of this people think there is a lack of information.

This project aims to handle this general scenario by troubleshooting the problems in the acquirement of Driving Licenses. Instructions and procedure given by the RTO are not clear and is extremely time consuming in most cases. There is a need for awareness about specific duration and prerequisites required for each of these steps. Organizing all the necessary information in one place will help people understand the process of getting a Driving License from the RTO. This is achieved by creating a web app where clear instructions are given through text and graphical icons, FAQ for every step are available and relevant status information is provided at every point. Hence people can use the online portal and apply for the Driving License themselves instead of the mediators which in turn saves both time and money.

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1 Introduction

In the ever changing world and the fast moving life everyone is struggling on day to day basis finding easy solutions to everything. One of the major issues that we often hear people sulking about is the government processes while applying for any documents. A Driving License is one such pain point for our Indian citizens.

What is a Driving License and why is it essential ?

A Driving Licence is an official document certifying that the holder is suitably qualified to drive a motor vehicle or vehicles. Under the provisions of the Motor Vehicles Act 1988 in India, no person can drive a motor vehicle in any public place unless he holds a valid Driving Licence issued to him, authorising him to drive a vehicle of that particular category. A driving licence is an integral part of life nowadays. Being able to drive puts you in charge, allowing you the freedom to go wherever you wish to. It is a useful skill no matter what age or where you live, and it comes with a

number of benefits. It also serves as a valid proof of identity and age, and is accepted universally. The government regulates individuals who drive through issuance of driving licence

The common people suffer because of lack of information on how to apply for a Driving License. Due to insufficient information people reach out to a third party for intervention that helps simplify the process for them.

Here my aim is to help these commoners find an easy way to applying for a Driving License without anyone's help. In this project, a detailed analysis of all the problems faced by the applicants as well as the RTO were taken into consideration and an effort to resolve all the issues has been made.

Objective

Reduce the interference of third party mainly brokers in process of driving license by guiding RTO applicants.

Aim

- Bring all available information of RTO to one platform.
- Bring the transparency in working system in RTO.

Focus

Develop a self explanatory platform and guide for RTO applicant by giving clear instructions, online tracking and FAQ at every stage for this the project focusing on Driving License proceeding to derive at design solution.

Chosen Processes

The list of task chosen to derive design solution is given as follows

- How to get Learner's License
- How to get Driving License

Target Group

Anyone applying for a Driving License Who has basic knowledge about reading and writing. Also people who have smart phones.

1.1 Motivations

Case 1: Passport

I wanted to apply for a passport first when I was in engineering. I did not know anything about the website then in 2011. I think the process was tougher then. Also, I was in Thanjavur where there is no passport office, so I went to a small makeshift office with a board saying will help in getting a passport. My problem was I did not have a birth certificate. I had one but my first ever school in Mumbai took it from me and did not return it. This shop in Thanjavur told me they can not help me if I did not have a birth certificate. They did not even tell me what else can be done. Also, he just said he wanted 3 address proofs. I was a student and how would I have all this?

Then in 2015, again after not getting birth certificate my dad just got another self-proclaimed agent to help us. He just took a lot of money and came back saying nothing can be done without a birth certificate. Then he wanted money to procure fake certificate. We said no. By

2015 December a lot of my classmates were going on a US trip to attend a conference and I wanted a passport frantically.

This time I finally took it on myself. I visited the website of passport Seva Kendra and followed instructions from a friend. I procured all the documents as mentioned there. And he had figured out what the process was for students. So I had address proof for my hostel, warden letter, bank details, 10th certificate. Since we were doing a tatkal we needed annexures attested and details from college.

I called up a lawyer and asked him how to apply without a birth certificate. I had a copy of my original. He said that an affidavit would do. So we paid him and got an affidavit, and annexure signed by him. Another annexure was required for a gazetted officer of a certain category where our dean would fit since iit professors come under the government. But the dean said his signature would not work. We searched high and low and till

the day of appointment could not get anyone so went with the signature of HOD. I had paid money. It got rejected due to the absence of an original birth certificate. It would take two months to get one. I missed my US trip because of this issue and no one knew how to get one. I was born in Chhattisgarh and had to go back to get a copy of my birth certificate over the summer break of 2 months. I got the attestation from my friend's father who is in a high position with the government. Finally, I could go and show them everything. All was ok. They verified. But the last stage had a glitch. The name on my birth certificate was different from all other documents but I had a court certificate from 1990 which said the name is changed but they said no and asked for a new one. The lawyer had again given me false hopes. I had paid him to get a new certificate for my name which was useless now. I had to make another annexure for the name. Send it out to 2 newspapers and come back with original copies. I thought this would take forever but luckily for me they gave me 4 days later appointment. But how to get a name printed in 4 days. me my mother and a few college friends so we tried a lot of options. I called up nearly 5 notary persons who all said come we will make annexure but no one knew about newspapers. I

luckily landed on a link, Shoddily made website for name change alone. They had packages for name change, annexure and print in newspaper of choice. So I called up the contact number and they said with 45 extra indian rupees they would deliver on urgent basis after print. The print would happen in 24 hours.

I took a package and asked for a regional and national paper and paid cash. My name did come in the papers and I got copies in the next 48 hours. I submitted and got the passport approved and the TCS there is making life easy. There are sms notification at every stage. E-mails also made life so much easy to get police verification and check my delivery etc. I got a passport finally.

Prarthana B.

Case 2: Passport Experience:

I applied for a passport through tatkal service so that I could get it in three days. The annexure - F for the process required a signature of an authority for which various prerequisites were provided (gazetted officer/authority having a pay scale of more than --- etc). I went with the signature of my department HOD but it was rejected. Then I went with the signature of corporate officer which was again rejected. The third time I took the signature of a bank manager but that was also rejected. I realized that abovementioned prerequisites were not clearly mentioned. Finally after one and a half week, the signature were accepted I waited for three days for the passport to come, but it didn't. I later got an email stating that I'll have to visit the old passport office to retrieve my passport. When I tried enquiring about the issue in customer care, they couldn't provide any additional information.

Finally I went there and found out that my passport service got changed from tatkal to normal somewhere in between. By this time three weeks had already passed. Then after waiting for three-four days, the passport still didn't arrive. So I applied my personal contact after which the process went further. Later it was stuck as I had to visit a police station regarding address proof.

But they were not clearing it until they got their bribe. I had to again apply my contact to get my verification. Finally after four-five weeks I was able to get my passport.

Raj K.

Case 3: Auto Rickshaw Driver:

I met an autorickshaw driver who applied for the renewal of his Driving License but it had been stuck since 4-5 months. The office was not clearing for some reason in spite of him constantly visiting the office. This led him to consider that it was better to fetch the help of some agent rather than going through the normal procedure.

Surendra L.

2 Secondary Research

To attempt to solve the problem of Driving License application, it is important to look at what information is government port and private portals are providing. The secondary research examines if the information for Driving License is given by portals are clear. It is one of the main type of information that the project attempts to use.



Maharashtra RTO Website

2.1 Government Portals

With respect to government portals following issues are noted:

- All information is not on one portal.
- A lot of information is not upfront. The user has to perform additional steps to find additional information.
- The interface is clumsy and disoriented.
- Absence of information hierarchy or proper general guidelines.
- One has to go through too many linked addresses for conceiving one operation. and every link has repeated information.

2.2 Private Portals

With respect to private portals following issues are noted:

- Private portals do not provide online application options.
- All the information is in textual form which takes too much time to read.
- Too much unnecessary information is provided in addition to the information required for a particular problem.
- All the information is scattered unevenly which makes it difficult to sort the relevant one.

The screenshot shows a website interface for Mumbai's RTO. The main heading is "Online Appointment For Learner License - RTO Mumbai". Below this, there's a navigation menu with categories like "LOANS", "CARDS", "INSURANCE", and "INVESTMENTS". The central content area is titled "Driving Licence" and includes a "Track Application" button and a "Login" link. The page contains several sections:

- Driving Licence:** A text-based introduction explaining the importance of a driving license in India.
- Proposed Amendments in Various Penalties under Motor Vehicle Amendment Bill - 2016:** A table listing various offenses and their corresponding penalties.
- Brief on Driving Licence India:** A paragraph explaining the purpose and issuance of a driving license by the Government of India.
- Types of DL in India:** A section detailing different license classes based on vehicle types.
- Sample License Card:** An image of a "DRIVING LICENCE" card from the Government of India, valid through India, with fields for DL No., Name, S/O, Address, DOB, and Valid Till.

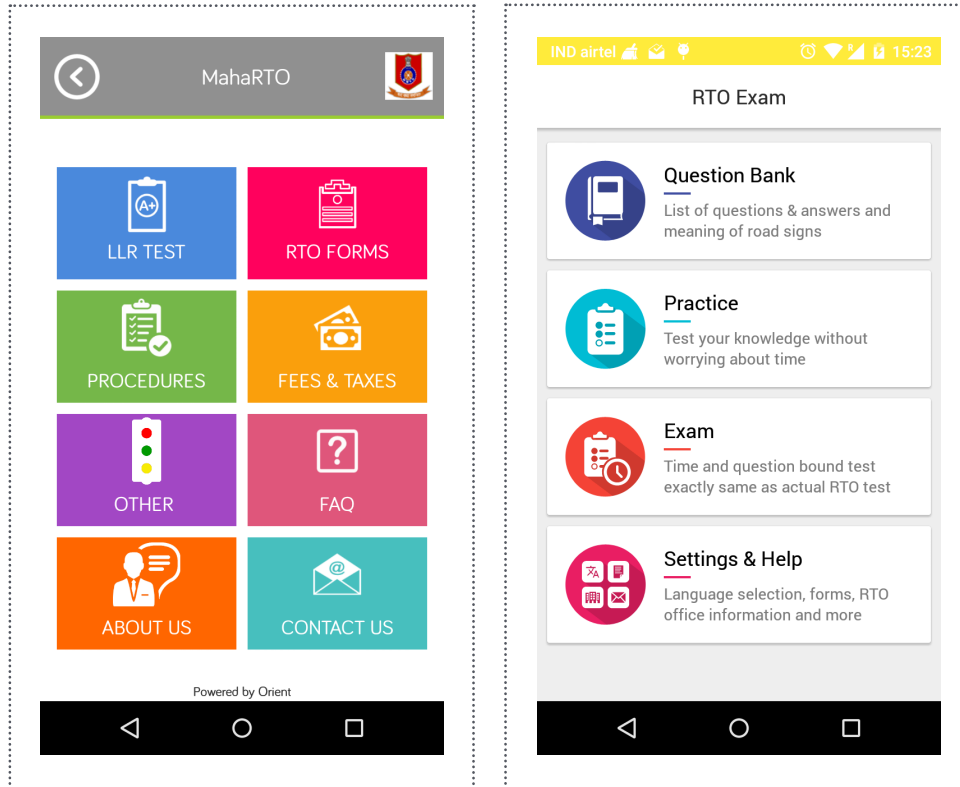
Section	Offence	DL Penalty/ Fine (₹)	DL Penalty/ Fine (₹) (New Provision)
107	Driver	₹100	₹100
108	Driver of motor vehicle without valid licence	₹100	₹100
109	Driver without licence	₹200	₹100
110	Overhaul of motor vehicle without licence	₹100	₹100
111	Overhaul of motor vehicle without licence	₹1,000	₹1,000
112	Driving without licence	₹500	₹1,000
113	Driving without licence	₹100	₹1,000

Vehicle Type	Driving License Class
Motorcycles with engine capacity of 50 cc or less than 50 cc	MC 50CC (Motorcycle 50 cc)
Motorcycles with gear, motorcycles with a capacity of 50 cc or more, Light Motor Vehicles (LMVs) including cars	MC EX50CC (Motorcycle more than 50 cc)
All Motorcycles types including Motorcycle with gear	MCWG or M / CYCLWG

Information about Driving License provided by private RTO Website

2.3 Mobile Apps

Currently two available apps are MahaRTO and RTO Exam. These existing apps are mainly for Learner's License exam preparation. There is no app for the specific functionality of applying for RTO services. There is no one 'go to' app for all the information. There is no govt authorised app for RTO services.



Practicing exam mobile app for Learner's License

लर्निंग लायसन्स मिळवण्यासाठी आवश्यक माहिती

लर्निंग लायसन्स मिळवण्यासाठी आवश्यक लागणारी कागदपत्रे

- रहिवासी दाखला (पासपोर्ट / आयडान कार्ड / विधान कागद / टोपिकेन विस)
- जन्म दाखला (उपरोक्त कोठल्याच दाखला किंवा डॉक्टर प्रमाणित प्रतिका दाखला (वय १८ वर्षे पुढे))
- २ पासपोर्ट आकाराचे फोटो
- सर्व कागदपत्रांच्या फोटो कॉपीज

क्रमांक	प्रक्रिया	लागणारा वेळ
1	अर्ज भरणाक २ दिवशी क्रमांक ३ घेवून घेणे. पुढे भरलेला अर्ज किटली क्रमांक ३ पर सुट्टी करणे. मुद्रा कागदपत्रे तयार करणे / घडवून घेणे.	२० मि ३५ मिनिट
2	तेरी परीक्षा.	२० मि ३० मिनिट
3	तेरी परीक्षेनंतर अर्ज प्रत्ये	१५ मिनिट
4	MVA अधिकारी परवानगदून अर्जावरील अंमती सादारी घेणे.	३० मि ३५ मिनिट
5	लायसन्स मुद्रक ३०/- रुपये घरणे.	२० मि ३० मिनिट
6	बायोमेट्रिक (फिंगरप्रुन घुन अंतरांतरा विकार / वय कमीत असे किटिलत करणे सुट्टी करणे)	३० मि ३५ मिनिट
7	लायसन्स प्रदती (एविकेडेड कागदाल २ मिनिटांचा प्रिंटाउत घेणे)	२ मि ३ वटा

R.T.O. Thane (License Department)

MVI - Motor Vehicle Inspector
ARTO - Assistant Regional Transport Officer

2.4 Case Study

With respect to previous study following issues and limitation are noted:

- Informative graphic work for only specific RTO
- Informative graphic better work for offline process but the current process is online as well as offline. Where user apply online then go to the RTO for further procedure

परमनन्त लायसन्स मिळवण्यासाठी आवश्यक माहिती

परमनन्त लायसन्स मिळवण्यासाठी आवश्यक लागणारी कागदपत्रे

- रहिवासी दाखला (पासपोर्ट / आयडान कार्ड / विधान कागद / टोपिकेन विस)
- जन्म दाखला (उपरोक्त कोठल्याच दाखला किंवा डॉक्टर प्रमाणित प्रतिका दाखला (वय १८ वर्षे पुढे))
- २ पासपोर्ट आकाराचे फोटो
- सर्व कागदपत्रांच्या फोटो कॉपीज
- फार्म नं. २ अधिकारीच्या स्वाक्षरी सह

क्रमांक	प्रक्रिया	लागणारा वेळ
1	अर्ज भरणाक ४ दिवशी क्रमांक ३ घेवून घेणे. पुढे भरलेला अर्ज क्रमांक २ आणि अर्ज क्रमांक ४ दिवशी क्रमांक ३ पर सुट्टी करणे. मुद्रा कागदपत्रे तयार करणे / घडवून घेणे.	३० मि ३५ मिनिट
2	पावक परीक्षा मुद्रक ५०/- रुपये घरणे.	२० मि ३० मिनिट
3	सर्वीक तयारी	१५ मिनिट
4	MVA अधिकारी यांच्या उपस्थितीत डॉक्टिंग टेस्ट घेणे (किटली मिळवणे घरणे करणे)	३० मि ३५ मिनिट
5	परमनन्त लायसन्स मुद्रक २५०/- रुपये घरणे.	२० मि ३० मिनिट
6	बायोमेट्रिक (फिंगरप्रुन घुन अंतरांतरा विकार / वय कमीत असे किटिलत करणे सुट्टी करणे)	३० मि ३५ मिनिट
7	लायसन्स प्रदती (मार्क ५०/-)	२ मि ३ वटा

आर. टी. ओ. ठाणे (लायसन्स विभाग)

MVI - Motor Vehicle Inspector
ARTO - Assistant Regional Transport Officer

Informative graphic board for RTO applicants

Source:

Information graphics for regional transportation office there by Prashant Mohan Bhandare with Guide Pro. Anirudha Joshi.

Problems at RTO begins where online problems end

Somit Sen | TNN | Mar 9, 2015, 04.23 AM IST




MUMBAI: The problems at the RTO start where the online problems end. Appointments for permanent driving test can be as late as six months and officials are now demanding there should be more slots -- 400 instead of 230 -- to clear the backlog.

TESTING TIME FOR APPLICANTS

THE GUIDELINES

- Visit sarathnic.in only on an Internet Explorer 9 browser to complete the process of online registration for a learner's driving licence
- Ensure you have Adobe Reader 11 and above installed
- After filling up the form and declaring the documents/proof online, an appointment receipt is generated mentioning date and time for learner's test
- Applicant should carry mentioned forms in original, along with copy: Appointment (token number) receipt; proof of address, age, nationality documents; two passport size photos
- An assistant inspector of motor vehicles will verify the documents, take your biometrics, collect fees, show you data entered in computer and let you to appear for a 20-mark test
- The licence should be issued on the day of appearing for the test



THE BACKLOG	Slots for permanent driving licence per day 230	Learner's licence appointment available Two months from present date	Backlog per month 5,100 applications
Slots for learner's driving licence per day 400	Applications held over for permanent driving test per day 170	Permanent licence appointment available Up to six months	Backlog per year 61,200 applications

Latest Comment

Very bad expirience of mumbai rudeless peoples we are treated as criminal victims you can just image the structure of mumbai RTO its just like a chawl no proper system . THE BEST SYSTEM OF OUR PASSPORT OFFICES, veev polite people & systematic

Rajan Nateshan

SEE ALL COMMENTS

ADD COMMENT

2.5 Online articles

Sources:

<http://timesofindia.indiatimes.com/city/mumbai/Problems-at-RTO-begins-where-online-problems-end/articleshow/46497910.cms>

<http://www.hindustantimes.com/mumbai/apply-ing-for-a-driving-licence-in-mumbai-prepare-for-a-long-wait/story-iOaLPOhAFzZ2ARnD4VuWgH.html>

<http://timesofindia.indiatimes.com/city/mumbai/Unfriendly-website-drives-many-to-RTO-agents-for-learners-licence/articleshow/46497898.cms>

<http://timesofindia.indiatimes.com/city/mumbai/Problems-at-RTO-begins-where-online-problems-end/articleshow/46497910.cms>

Applying for a driving licence in Mumbai? Prepare for a long wait

Kallesh Korde, Hindustan Times, Mumbai | Updated: Feb 17, 2015 21:59 IST



If you are planning to apply for a driving licence in Mumbai, be prepared for a long wait.

Believe it or not, those who applied for permanent driving licences for four-wheelers at the Andheri RTO on Tuesday were given appointments for August 16. This means they have to wait for six months to appear for their driving tests.

The minimum gap between date of application and date of appointment for permanent driving licences is two-three months at all three RTOs in the city, while the same for learning licences is two months.

According to sources in motor training schools, the earliest available appointments for

Unfriendly website drives many to RTO agents for learner's licence

Sujit Mahamulkar | TNN | Mar 9, 2015, 04:20 AM IST



T I did a test run on the online registration process for learner licence. And the experience was indeed frustrating -- our correspondent was unable to complete the registration process although trying it on two successive days. Here's his first person account.

[Home](#) > [Mumbai](#)



Going to RTO without an agent? Don't even think of making that mistake

After being barred from the Andheri RTO on Monday, agents protested at its entrance; the scene replicated itself at the gates of all the RTOs across the city (Abhinav Kocharekar)

2.6 Key Findings from Secondary Research

Lack of proper in-site infrastructure:

- The website did not provide any proper guidelines to applicants in a way that they could find the relevant information regarding their problem. Also the current information is cluttered so the relevant information is not visible. Many times it was difficult to even log in to the site.

Unnecessary scattering of information:

- The user has to go through different platforms/pages to get the required set of information. The problem arises when the pathways are also not clearly mentioned or explained. This leads to unnecessary wandering through virtual pathways

Unclear information:

- The information on a particular platform is also unclear in a way that the user is not able to clearly understand a particular problem.

Unfriendly system:

- The office has a lack of required number of staff members which leads to improper handling of users. Also the overall environment is unfriendly in perspective of a new/first time user.

Longer in-between time:

- The Driving License procedure is generally shorter but the overall time from the initiation to the getting of document takes a lot of time (mishandling, document stuck in between etc) which makes the general population not trust the system.
- The online appointment system has brought down the number of licences issued, but has made the system transparent.

- Before the online appointment system, RTO offices used to issue about 350-800 licences a day.
- There is no proper directional indication in the offices which creates confusion for a new user.

Following are the observed reasons for depending on mediator to complete the task.

- No complete knowledge about the process and place.
- People want to complete the task with a less time and strain.
- Frustration created in many cases.
(Case 1)

Vehicle Type	Driving License Class
Motorcycles with engine capacity of 50 cc or less than 50 cc	MC 50CC (Motorcycle 50 cc)
Motorcycles with gear, motorcycles with a capacity of 50 cc or more, Light Motor Vehicles (LMVs) including cars	MC EX50CC (Motorcycle more than 50 cc)
All Motorcycles types including Motorcycle with gear	MCWG or M / CYCL. WG
Motorcycles of any cc but with no gears - including scooters and mopeds	FVG
Light Motor Vehicle for non transport purposes	LMV - NT
Light Motor Vehicle intended for commercial purposes	LMV - TR
Heavy Passenger Motor Vehicle (also referred to as All India driving permit for trucks and cars or open license)	HPMV
Heavy Goods Motor Vehicle	HGMV
Candidates holding a heavy vehicle Driving License can apply for heavy trailer license	TRAILOR

2.7 Essential information About Driving License

1. Types of DL in India:

Depending on the class of the vehicle, Indian applicants are awarded different Driving Licenses. Also, the eligibility criteria varies for Driving Licenses pertaining to different vehicle classes. Here are some of the popular vehicle classes for which a Driving License can be obtained in India.

Type of Permanent Driving License	Eligibility Criteria
Motorcycles without gear (with a capacity of up to 50 cc)	The applicant must be at least 16 years old and must have the consent of parent or guardian if he is less than 18 years old.
Motorcycles with gear	The applicant should be at least 18 years old.
Commercial Heavy Vehicles and Transport Vehicles	The applicant should have completed 8th standard. The applicant must be at least 18 years old (in some states, the minimum age limit is 20 years).
General Requirement	The applicant must be conversant with traffic regulations and rules. The applicant must have valid age proof and address proof documents.

2. Eligibility for Driving License in India:

The eligibility for Driving License in India depends on the class of vehicle and the type of Driving License. The eligibility criteria for different permanent Driving License types in India are given below.

3. Document Required for Driving License:

While applying for a Driving License, the candidate must submit all documents given below. Timely submission of all necessary documents will ensure a smooth and faster application process. Refer to the list given below to know what documents will be required while making an application for Driving License in India.

Age Proof (any one of the below given documents)

- Birth Certificate
- PAN Card
- Passport
- 10th Class mark sheet
- Transfer certificate from any school for any class with date of birth printed on it.

Proof of Address required for DL:

- Permanent Proof of address (any one from the following):
- Passport
- Aadhaar Card
- Self-owned house agreement
- Electricity bill(issued in applicants name)
- LIC bond
- Voters ID Card
- Ration card

Current Proof of address (any one from the following):

- Rental agreement and electricity bill
- Rental agreement and LPG bill

Other Requirements for Driving Licence:

- Duly filled application form (to get the application form for Driving License, visit the nearest RTO or download it from the online portal for your state)
- 6 passport sized photographs (when applying for Learner's Licence)
- 1 passport sized photograph (when applying for driving licence)
- Application Fees
- If you are staying in another city, as current address proof, you can present the rental agreement with one recent utility bill copy which can be gas bill or electric bill.
- Medical Certificate - Form 1 A and 1 which is to be issued by a certified Government doctor
- For all applicants over the age of 40 years,
- A Medical certificate is mandatory.

Other information About Driving License:

- How to Apply for a Driving License in RTO or Offline in India?
- Test Procedure for Driving License in India

- International Driving Permit (IDP) in India
- Why do you need a Driving License in India?
- FAQs on Driving Licence

Resources:

<https://www.bankbazaar.com>

Nagarikanchi Sanad Book

3 Primary Research

To know the users and the exact problem faced by the users while applying for online application of Driving License a task based user test was conducted for existing portals with 5 users. User test was divided in two stages. First user test was conducted without a video guide and second test was conducted a video guide. Video guide was about the process of Driving License.

User test help to find out following points.

- Are user able to find out Driving License portal.
- User's Familiarity with computer and mobile device.

3.1 Contextual Inquiry

The method of contextual inquiry was employed to conduct the user study. The aim of the enquiry was to generate insights about the type of process followed by the user and problem faced while applying the Driving License.

A semi-structured interview was conducted for different types of users. For example, Students would be asked a slightly different set of questions than working group. 2 private staff were also interviewed since they work extensively with Wadala RTO officers. 4 RTO officers from Wadala RTO were interviewed to enquire about the RTO system. The interviews were recorded and a transcript was created during the contextual enquiry.

Applicants Interviewed

- Before Applying for Driving License Application **(5)**
- At RTO - After doing online process and Before document verification **(2)**
- At RTO - after Biometric **(14)**
- AT RTO After Online Exams **(3)**

Total Number of Users Interviewed **24**

3.2 Questionnaire for user

The users overall were asked the following questions during the semi-structured interview, although not necessarily in the order shown. Some questions might have been skipped for certain types of users and depending on the context. Each question is a type of a conversation starter to discover deeper problems and ideas in the user's experience. The aim was to empathize with the user and probe into the user's thought process while working on a problem.

- **How do you find the first step for applying the licence?**

This was asked to check the different age group users to collect the information, whether it was to generate an insight or prove a hypothesis. This would enable the discovery of a possible inquiry pattern which people use for Driving License.

- **How did you find your RTO circle and the RTO office?**

This was asked to test whether the user knows their RTO circle office.

- **What are the steps to apply for the license?**

This was asked to check whether the user was aware of the process and if they get stuck in between the process, what decision they would take.

- **Did you get stuck in between while filling the form?**

This was asked to find out whether filling the form was very difficult or language barrier was the main problem which tends the user to take help from someone.

- **How much money did you spend to get the licence?**

This was asked to check whether the users were

aware about the application fees and to find out the difference between the costs if they applied for the license themselves or via a mediator for Driving License.

- **Why do you think applying for license is too hectic process?**

This was asked to find the pain points that the users themselves could identify. Other pain points would be identified by generating an affinity map of the user statements.

Other questions that were asked included the following.

- *Did you find any difficulties while applying for license?*
- *Which is the simplest process to get Driving License? And why?*

3.3 Facts and figures from the office staff interview:

To understand the loopholes in the process, 6 Office staff was interviewed. 4 from gov. staff and 2 from private staff.

- Types of mediators
 - Motor vehicle dealer
 - Driving School
 - Agent
- Large number of people fails in exam.
- Daily 450 slots for LL license
- 80% applicants apply via Driving school, 10% applicants apply themselves and 10% applicants apply via mediator.
- Most of the people are lazy to fill do the process it by themself.
- Applicants are not confident enough to apply for a license via online.
- People are not prepared for exam due to many people failing in the Learner's License test.
- Very difficult to change the system because of

different rules in different cities and regions.

- Some should overtake RTO, then only system would change like the Passport issue system.

One Postman was interviewed to understand the loopholes in the Driving License delivery process.

- Daily 700 to 900 post they post.
- Sometimes 1000 to 1200 license they post.

3.4 Findings and Insights from Primary Research

- There is a lack of awareness about online application portals.
- People are unaware of license fees, documents and process.
- People get influenced by their friends to take help from Driving school and Agents.

3.5 Key finding from primary and secondary research

There are three types of people:

- Type A people are busy with their life that they don't want to stress themselves so they go to the mediator.
- Type B people go to online government portal but get confused by scattered information and lack of information.
- Type C people are totally unaware about the online portals, so they take help from someone.
- Applicants are more familiar with smartphones than desktops.

4 Initial Design Ideas

The insights and key findings from the user studies led to a few initial design ideas as shown below. An important finding was of users search for the process of driving license by using Google speech. This led to a key insight that it would be necessary to give the users the power to use online portal easily without too much of post processing. Basic idea was to give basic instructions. It led me to think of different possible media for a design, which is given as follows:

- Book/Instruction manual (Instructions through images)
- Viral Instruction videos (Social media)
- Web application
- Website and Mobile site
- Mobile App

Design Idea 1

Mobile App

In this idea, the aim was to minimise cognitive load by Collecting all the information and giving it on one mobile app that will help the user to find instructions and essential information about the Driving License.

Possible drawbacks and Limitations:

Driving License process is a one time process. For this people might not download the app.

Transport Department
 Government of Maharashtra
 e-Receipt For Online Learner's License Application

RTO Name	RLA, AMBALA	Receipt Date	27-10-2016
Applicant Name	MY NAME MIDDLE NAME	Receipt No	HRA/1041
Date of Birth	04-10-2000	Bank / Gateway	HMP
License No		Bank Reference No	0021394525
Application No	102758216	Transaction ID	HR2016A252332
Application Date	27-10-2016		

Transaction Name	Class of Vehicles	Fee Amount	Additional Fee / Fine	Total
ISSUE NEW LL	Motor cycle without Gear (Non Transport)	31.00	0.00	31.00
Total Amount				31.00
Total Amount (In Words)		Thirty One Rupees only		

Note: Visit the Concerned Office before 30 min. with Required Forms and Documents along with this Receipt.

SOWRCP001



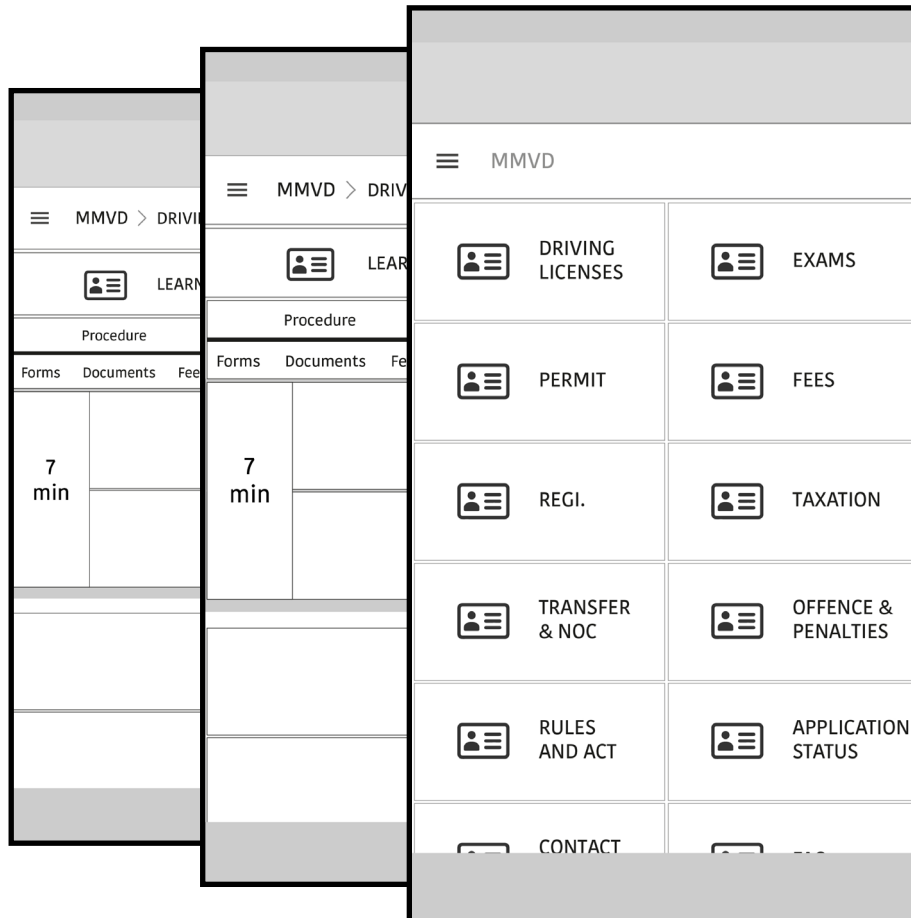
Next procedure for getting Learner's License.

1. Document Verification
2. Fees Payment
3. Biometric
4. Online Exam for Learner's License
5. Visit RTO Office after 3 Days

Design Idea 2

Procedure on Application form:

After the procedures are completed in the online portal, the offline process can be printed on the application for further usage.



Design Idea 3

Web Application

The app provides an offline tracking feature whereby the user can enter/check out their status/progress throughout the procedure. Instruction to each step is provided for both online or offline processes. Further video tutorial is provided on how to fill the form. Also for additional help, a list of FAQs will be given for every step

Possible drawbacks and Limitations:

- Can't apply online
- Difficult to understand Architecture of app on first attempt
- Extra effort to do Manual tracking

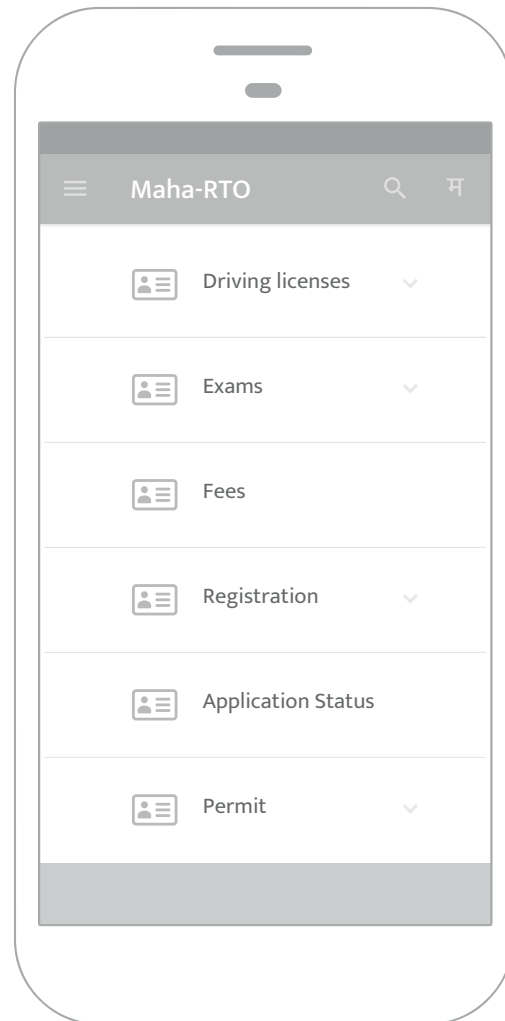
5 Design Decision

Mobile base Web Application

It was seen that for communication and online surfing a mobile phone was used on a larger scale, while a desktop was used by very less number of people. In a nutshell, following were the key insights discovered after the User study and evaluation.

- Users do not need all information all the time.
- Process should follow the instructions, users need to know the flow of things.
- Mobile phones are used as a medium to reach many users as a web app.

Low Fidelity Prototype

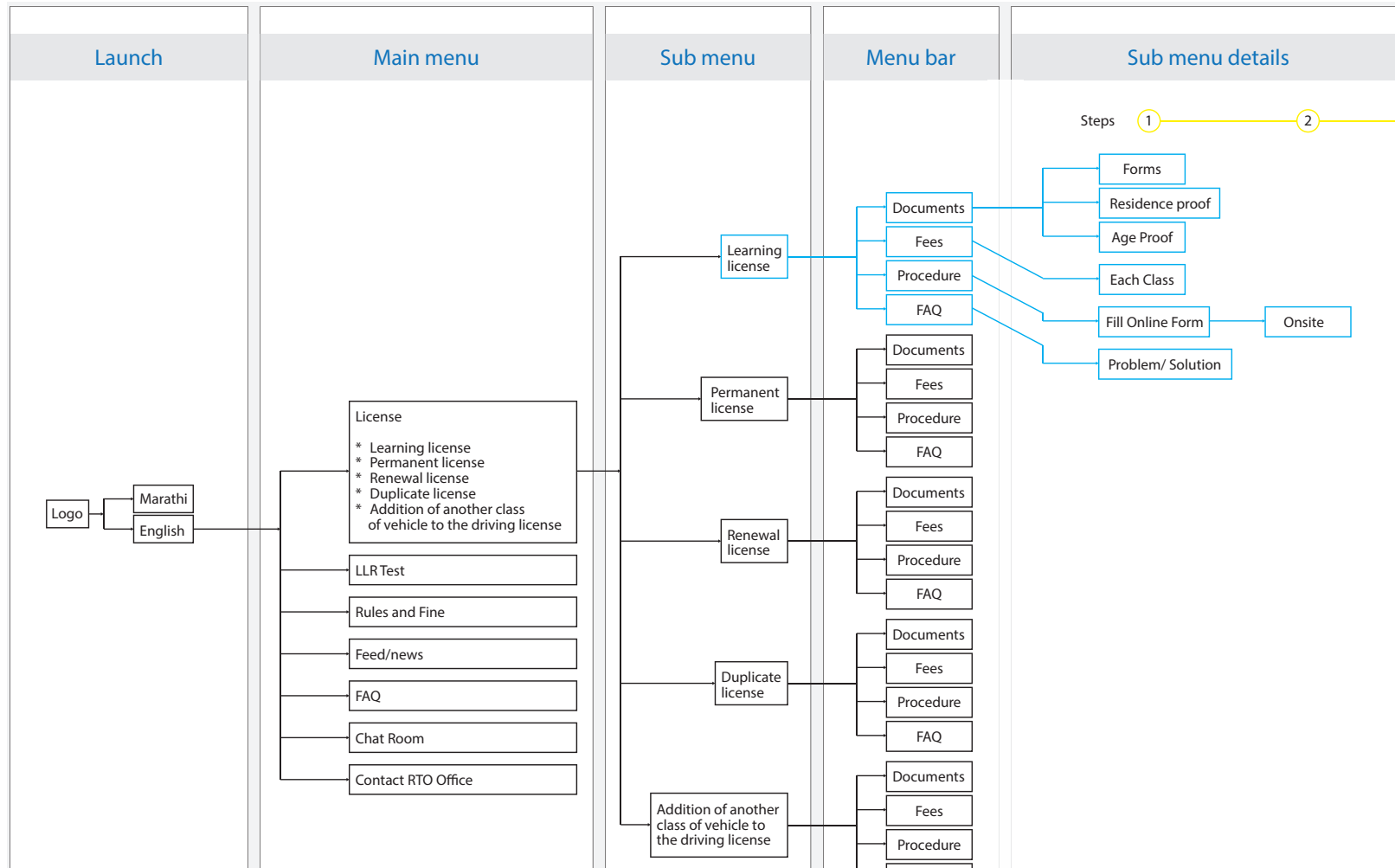


5.1 Iteration of Design Idea 3

Web Application

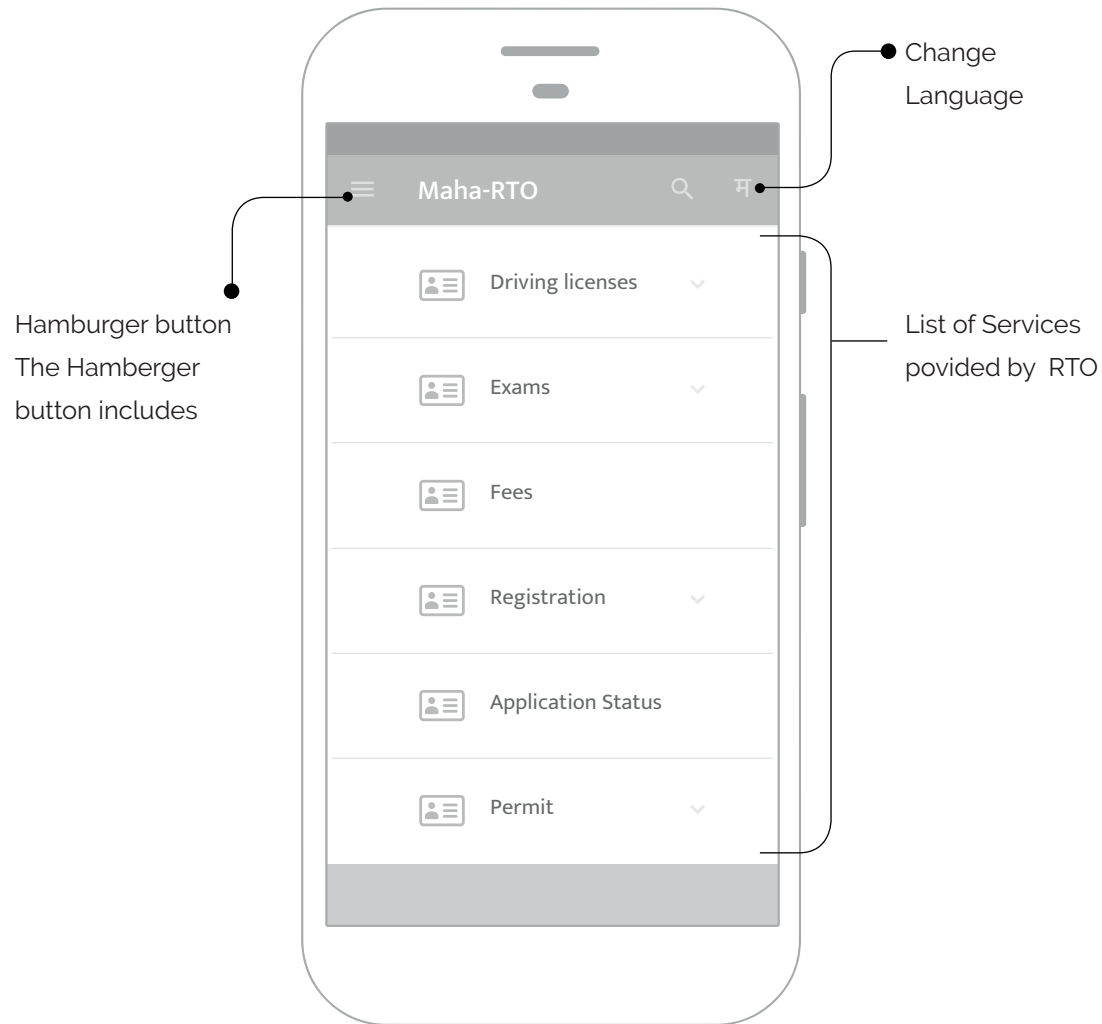
Iterating further on the design idea 3 the offline feature is replaced by an online tracking feature which enables the web app to track user progress automatically without having him/her to enter manually. Also it would give the live status. The instruction to all steps have been continued as same. Another major iteration added is the feature to apply online and fill application forms directly from the app. Also, FAQ's have been filtered in a way that only the ones that are currently relevant at a point will be provided so as to save the user from unnecessary hassle of sorting. From the key findings and Including all the features working low fidelity prototype was created.

5.2 Information Architecture



From the key findings of primary and secondary research above information architecture is created.

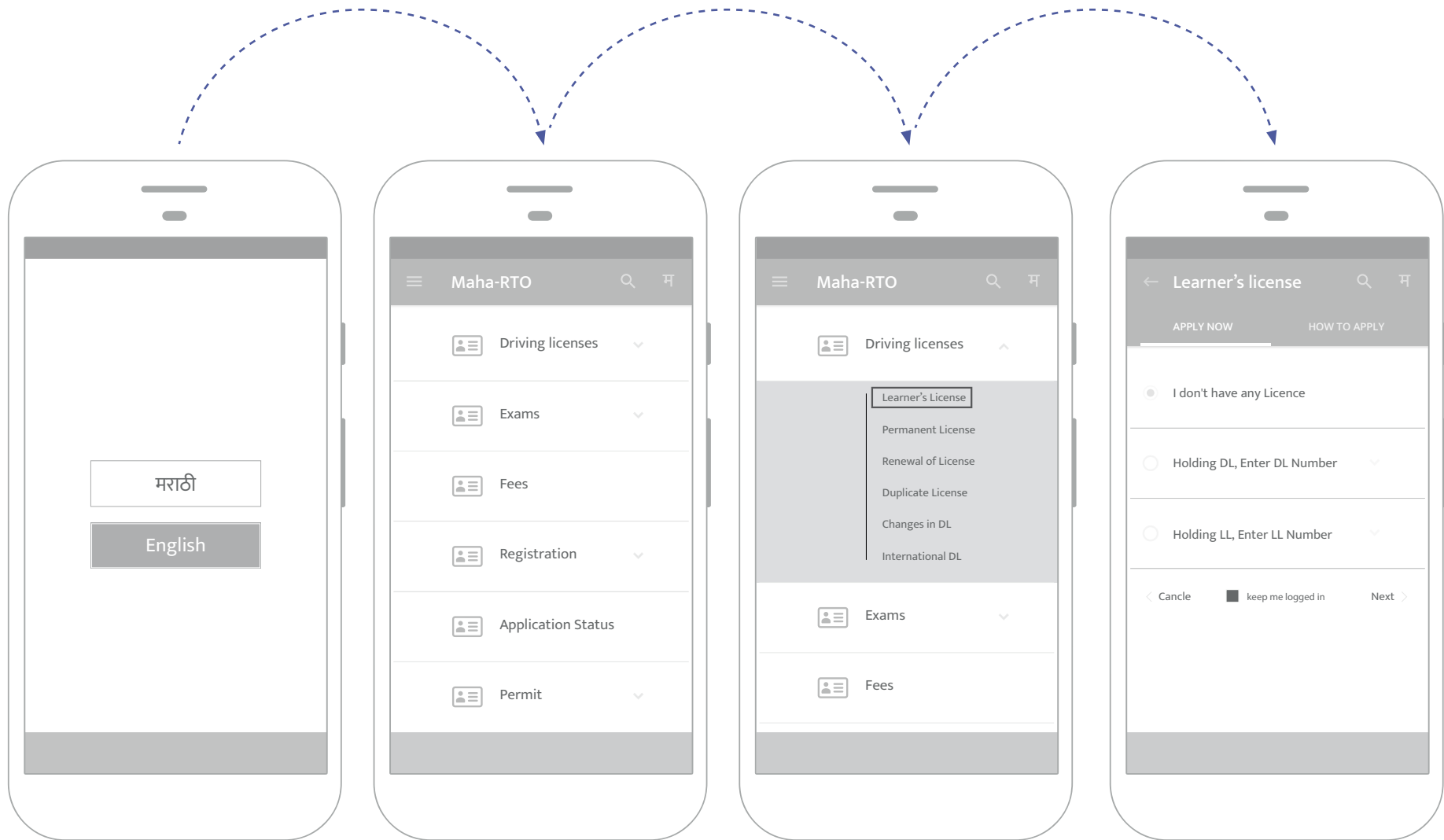
Home Page



5.3 Design Details

Fixed Elements on Home page

- Hamburger Button
 - Profile
- Search Option
 - Text
 - Audio
- Change Language
 - Marathi
 - Hindi



If applicant is visiting on RTO web application, first time a language screen is shown. From next time it would not be shown.

This is the home page where applicant will find all the services.

After clicking on Driving License, applicant has to click on Learner's License.

This is the Learner's License page. Here applicant can go through the process or can directly apply for LL.

6 Heuristic Evaluation

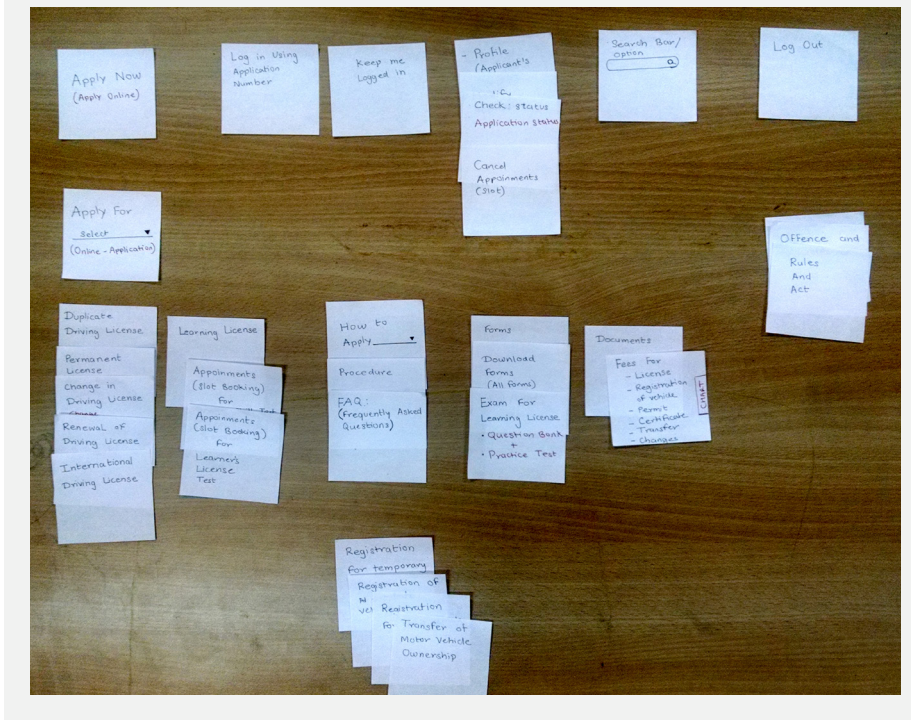
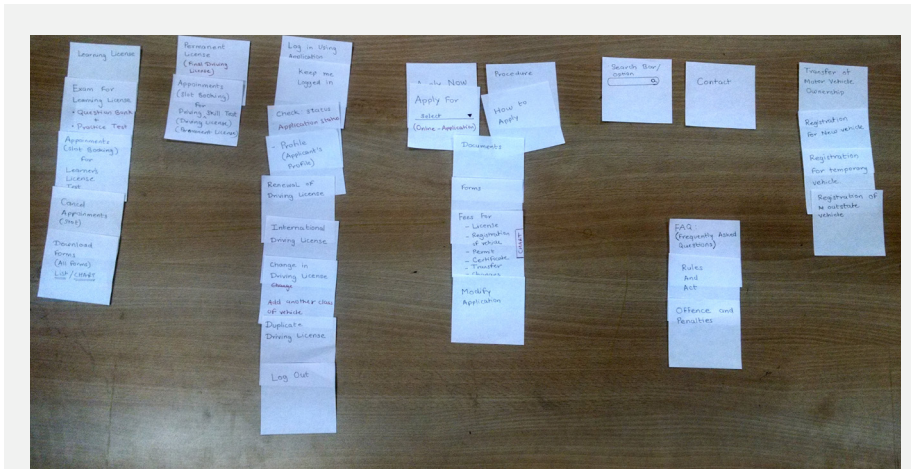
A heuristic evaluation was conducted with a group of 3 interaction design students. The aim was to find any usability faults in the information architecture. It was concluded from the received feedback that the idea was not a foolproof one, even though it was intriguing. The heuristic evaluation led to the following insights :

On Information Architecture:

- Too many options on the landing screen. No categorization of sorts.
- Taxonomies are not well defined in the application. It can make user get lost in too much data.
- Too many hierarchies which can cause user to get confused in the whole structure.
- The instructions, form elements are too verbal.

On Features:

- It doesn't have option to save/remember user's application number.
- It doesn't have option to save the previous tasks like filling application forms if the app got closed accidentally.
- It has many application forms which don't have option to fetch information from user profile. Also, there is no user profile customization option.

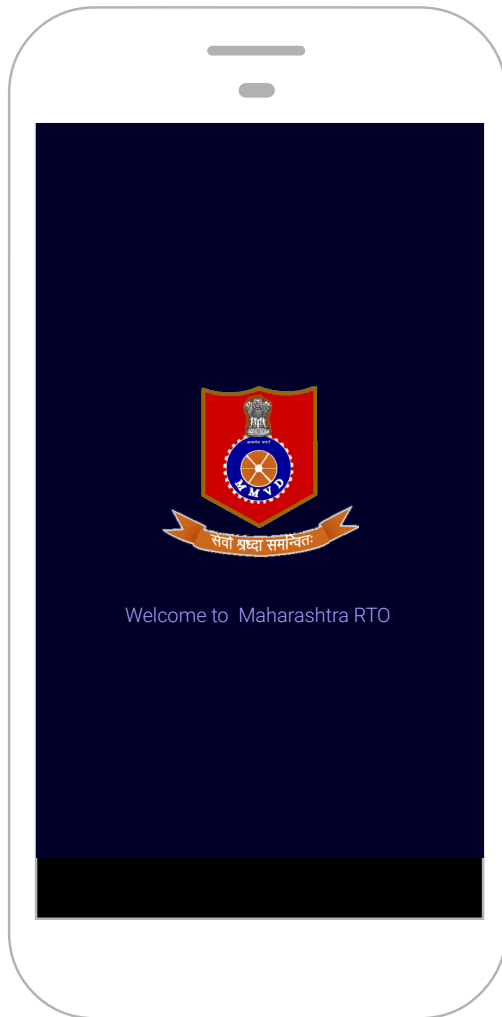


6.1 Card Sorting

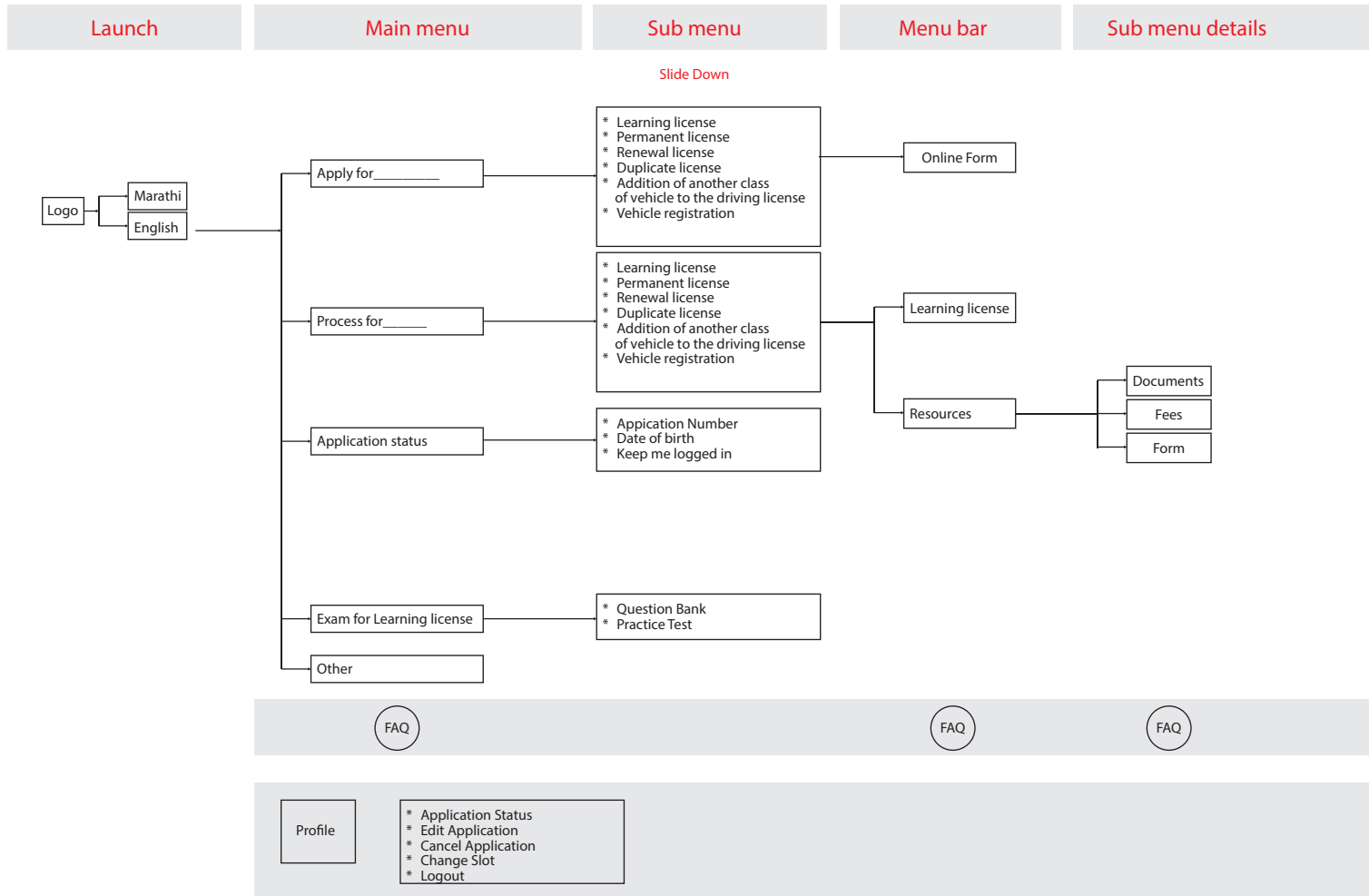
A card sorting was done with 5 interaction design students. The aim was to find any usability faults in the information architecture.

7 Final Design Idea

A critical analysis of the secondary research, primary research, user studies, design ideas, heuristic evaluation and card sorting was done to help simplify the information architecture.



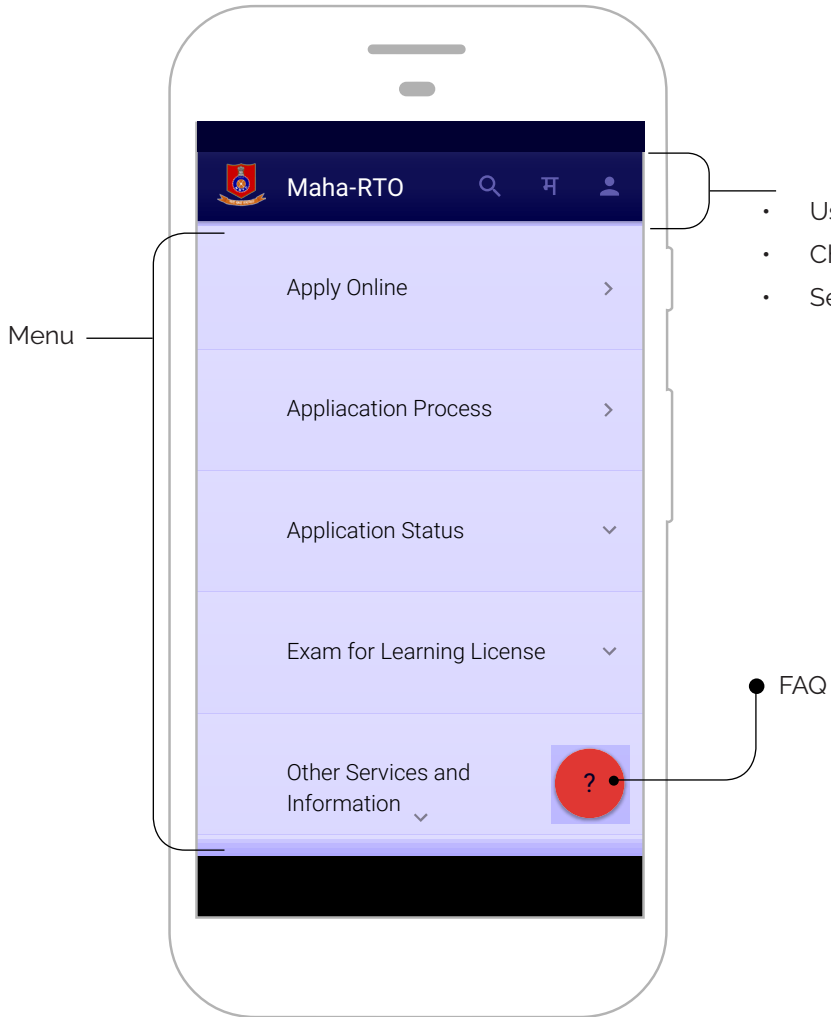
7.1 Information Architecture



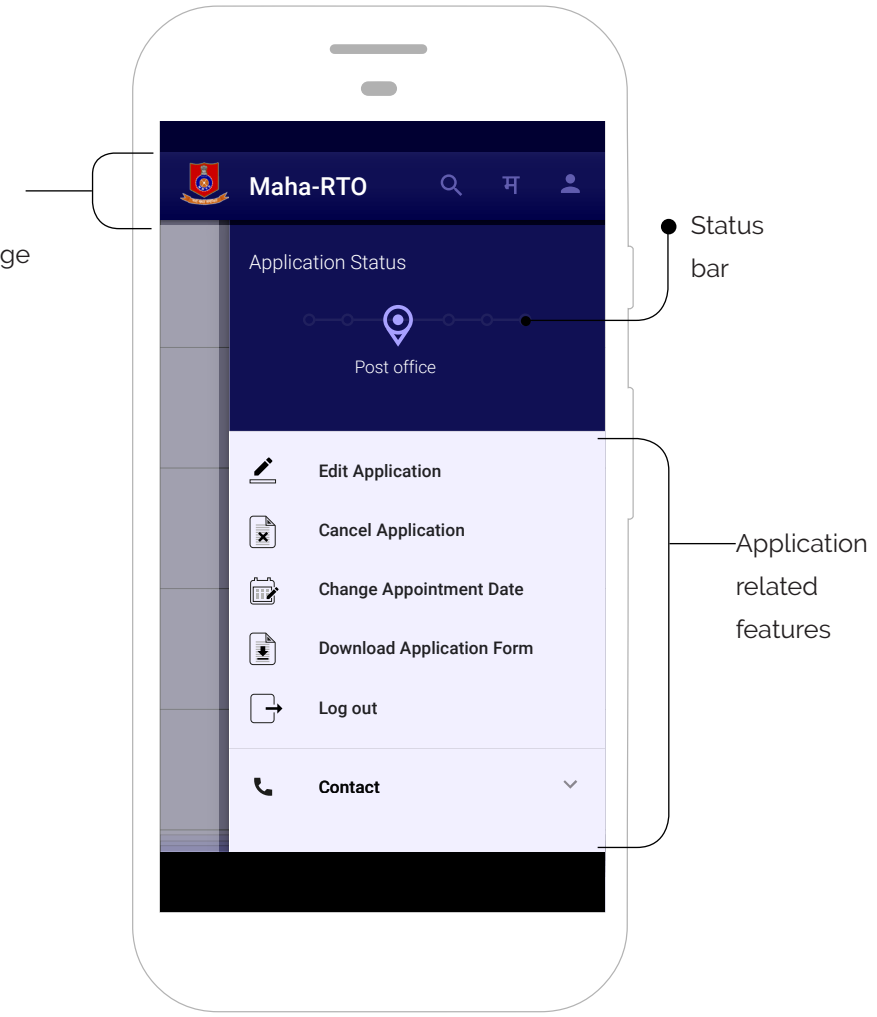
From the key findings of heuristic evaluation and card sorting above refined information architecture is created.

7.2 Design Details

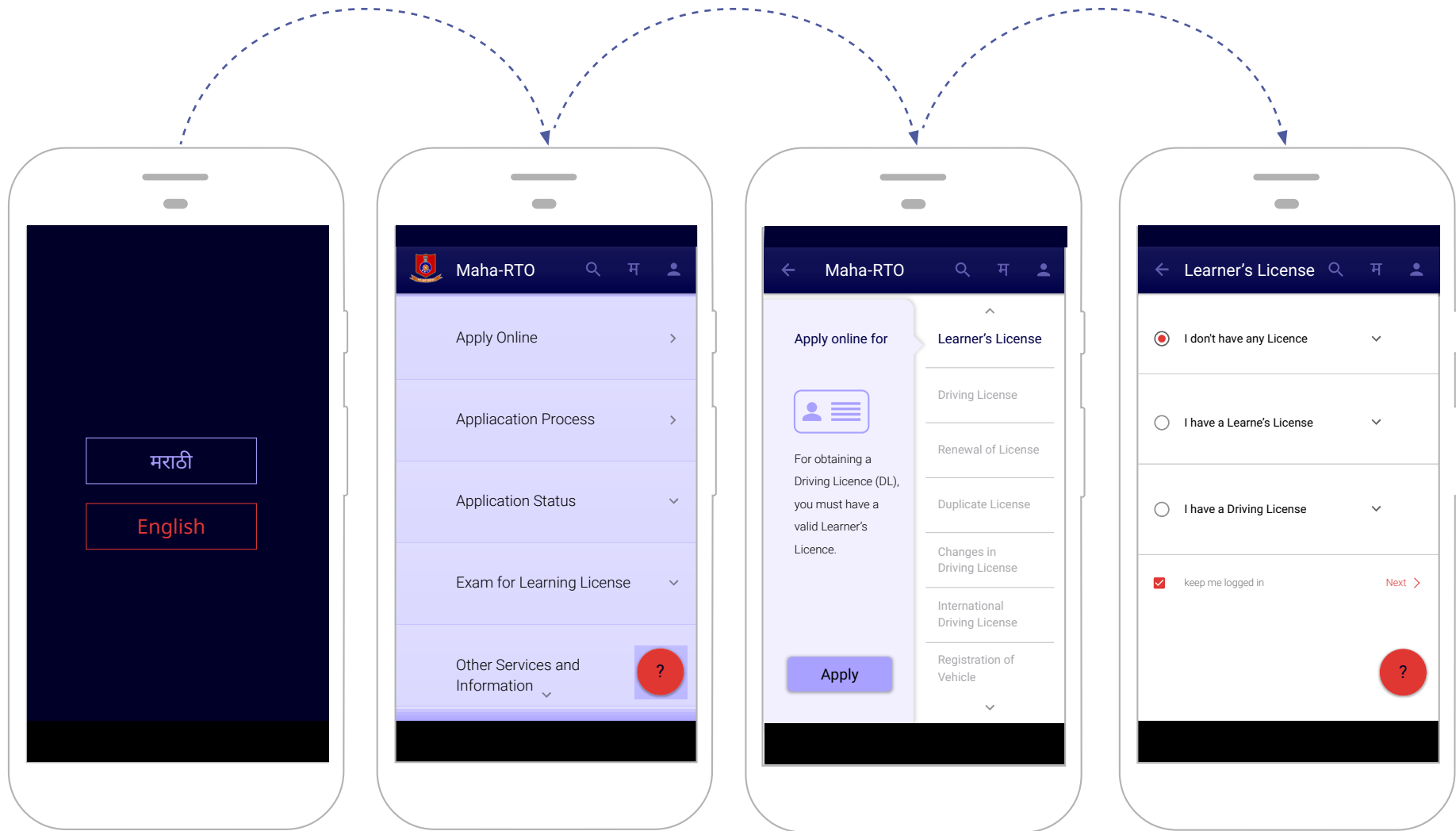
Home Page



Profile Page



Based on refined information architecture web application is created.

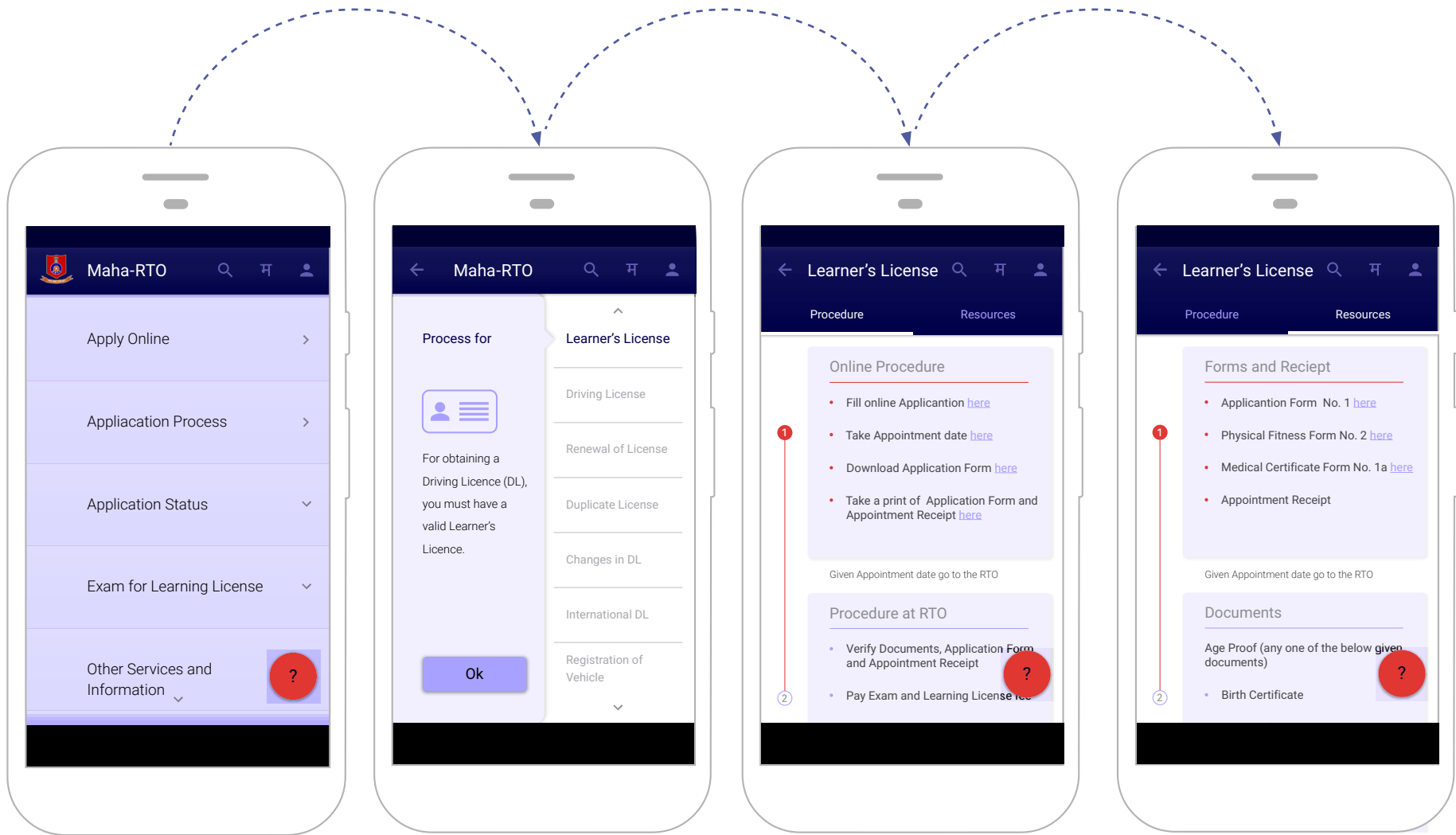


If applicant is visiting on RTO web application, first time a language screen is shown. From next time it would not be shown.

This is the home page where applicant can apply directly or before applying he/she can go through the process.

After clicking on Apply online, applicant have to choose for what servise he/she going to apply then have to click on Ok button.

This is the Learner's License Application page.



Above screen showing the process for Learner's License

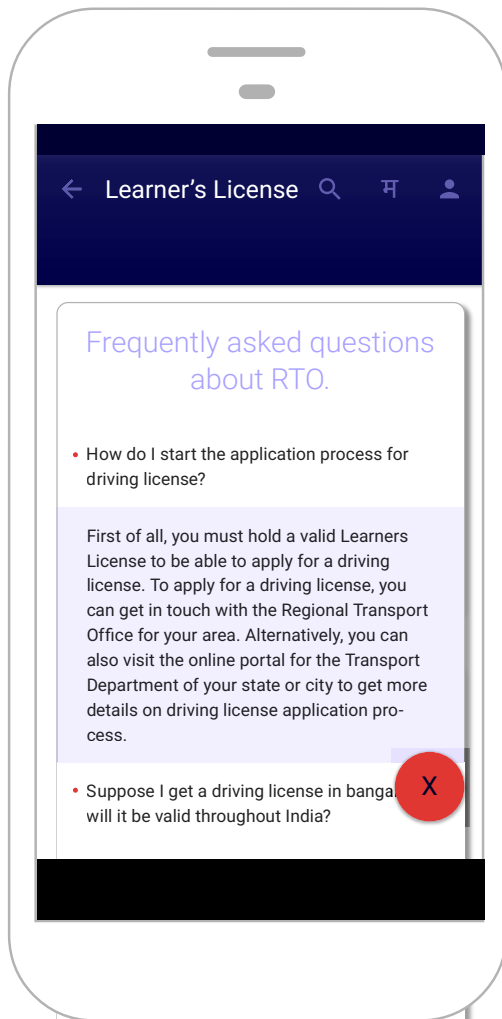
8 Scenarios

Scenario 1 - Online Application

I was filling the form through the online portal and progressing through the steps. After filling quite a number of steps later realized that the net connection had been lost. When I connected again I realize that I lost all the previous progress and now will have to fill the entire form from the beginning. Another time after covering quite a few steps I was not able to understand the current step that I was on. Without understanding that step I could not move further. Therefore I had to quit the entire process. After understanding that particular step later, when I went back, I had to start all over again.

Solution

During the online form filling procedure when the net connection went off in between, the bars of the app went black and white which gave me the indication for the same. After I got connected with the network again I didn't lose my entire data as the whole app filling procedure was divided into chunks and each chunk got saved as I progressed through them. Also the next time when I got confused with a certain step and had to quit the app, all the previous steps were saved and I could continue anytime.



Scenario 2 - At RTO

After filling the form online I went to the the RTO office but got confused with the further steps. Not only that I was not sure where to approach for a particular process. When I finally reached a counter, I realized that I forgot some of the documents that were required for validation and had to go back to retrieve them. By the time I came back, the office was already closed.

Solution

I reached the RTO office after completing the pre-processes through the mobile web app. Before leaving, the app notified me of what all documents to take for a particular process of verification. Through the FAQs section of the app I got all my doubts cleared already on how to proceed. The app also provided me with clear instructions on how to proceed sequentially. This saved most of my time and I could complete the process hassle free.

9 Evaluation

The purpose of evaluation for the project is to understand the usability and findability.

Objective of evaluation

- Evaluate the usability of second interface (Screen).
- Check findability of information.
- Check usability of the web app at different situations.

Evaluation Protocol

Simplicity/ Feasibility of the web app should be tested by giving think-aloud performance test to user. Participants would be provided with the already opened up portal. The participants would have to use the web application while continuously thinking out loud, or verbalizing their thoughts as they move through the interface or perform the given tasks. Performance test will find whether the user can complete the task and how much time they took to complete it. Test will include the following tasks.

Task 1: Apply for Driving license

This task covers major screens of the web app.

Task 2: Check the license status.

This is the additional feature

Task 3: What is the fee for two wheeler driving license?

	NON-TECH SAVVY				TECH SAVVY		
USER	U1	U2	U3	U4	U5	U6	U7
AGE	42	24	18	20	30	23	25
EDUCATION LEVEL	10	9	9	11	10	UG+	PG
PROFESSION	CLEANER	CLEANER	CLEANER	SUPERVISOR	CLEANER	STUDENT	DESIGNER
TIME FOR TASK 1	10 min	7 min	11 min	10 min	15 min	10 min	8 min
TASK 1 COMPLETED	No	Yes	No	Yes	Yes	Yes	Yes
TASK 2 COMPLETED	No	Yes	No	Yes	Yes	Yes	Yes
TASK 3 COMPLETED	No	Yes	Yes	Yes	Yes	Yes	Yes

NON-TECH SAVVY		TECH SAVVY		OVERALL	
AVERAGE TIME	SD	AVERAGE TIME	SD	AVERAGE TIME	SD
9.50	1.73	11.00	3.61	10.14	2.36

	AVERAGE TIME
	TWO USERS
APP	9
WEBSITE	16.5
	45.45%

10 Findings of Evaluation

- Only one user saw the process for Driving license.
- Non tech savvy users perform as much as tech savvy users.
- After applying for liscence, users not necessarily aware they were logged in. It can be avoided by giving a visual cue
- Graduation in understanding the procedures and interface with the tasks
- Almost same time taken by all the useres (tech savvy/non tech savvy). More because of the buffer time of app rather than user understnding flaw
- non tech savvy users were able to use the aiding functions (help button, profile view) more conciously compard to tech savvy users

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15. **Nagarikanchi Sanad Book**