

# Interaction Design Project: Final Report

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Website Name	[IRCTC Next Generation eTicketing System]
Website URL	[ <a href="https://irctc.co.in/">https://irctc.co.in/</a> ]
Prototype Site URL	[ <a href="https://hv43kt.axshare.com/">https://hv43kt.axshare.com/</a> ]

## 1. Executive Summary

The website we chose to redesign was IRCTC Next Generation eTicketing System and the main goal was to improve the features of the original website like aesthetic usability, alignment, improving UI component accessing time and removing unnecessary details. In this study, we focused on enhancing the user experience, system functionality and UI of the website that were lacking in the original version. In particular, we used the design principles and UI/UX laws to identify the places of improvement and make the required enhancement that can result in a better user experience. Some of the examples of improvement that were made to give an idea are implementing better button designs, slider components were introduced to replace the existing check box that did not implement the designed functionality well and hiding the infrequent options inside another option to make space for more comprehensible design.

As per the evaluation from system usability scores obtained through participant feedback, around 70 percent of the participants are able to conveniently use the prototype website to perform the tasks specified as usability task steps. The participants are more comfortable with the web pages in the areas like easy access to Tech support (around 70 percent), ease of use and navigation through the website (around 60 percent), system functionality integration (around 60 percent), learnability (around 50 percent) and access speed (around 50 percent). More than 60 percent of the participants provided satisfied scores i.e., upto 60 percent on the consistency. On the other hand, as per the other 30 percent of the participants the system could further be improved in complexity and confidence. These scores are drawn comparing the individual test scores based on each characteristic mentioned as a part of usability test questions and the accumulated statistics like average score of each question collected from multiple participants from various demographic groups. Apart from that the time taken for performing the task on two design was calculated. The prototype on average took a task time of around 413 seconds and the original design was around 432 seconds. There is a difference of 19 seconds between the two designs where the prototype has done well. With respect to the single easy question, the prototype has done significantly well over the website scoring an average of 0.833 and the website scoring an average of only 0.5. From this, we can say that 33.3% of participants on an average preferred the prototype design to the original. We believe that this could be due to

the enhancement of the overall design that gave the users aesthetic-usability effect. The detailed finding and metrics have been listed below in the reminder sections of the report

To sum up, we can understand that most of the participants are convenient with the prototype and have found the original website a little tedious when compared to the redesign.

## 2. Method

### Who we tested

The IRCTC's e-Ticketing system and its redesigned prototype was evaluated by twelve participants having the following demographics:

Age		Gender		Computer Usage	
18 - 25	5	Women	6	0 to 25 hrs. wk.	3
25 - 35	4	Men	6	26 to 50 hrs. wk.	6
35 - 50	3	TOTAL (participants)	12	50+ hrs. wk.	3
TOTAL (participants)	12			TOTAL (participants)	12

### What participants did

- **About the Experiment:**

Initially, the participants were instructed about the experiment and its overall goal. We had given them enough time to understand the script given and told them to clarify their doubts before the start of the experiment. We also ensured that the script was available to the user on their mobile device and kept through out the experiment for reference. In any case, we did not want to re-record the interactions of any participants as this would give them the prior knowledge and could influence the task time significantly. In case of any unsuccessful experiment, the results of the user were discarded. In our case, we had to discard two of the experiments which had issues during the recording. We had also instructed the users to start the movement of their mouse only upon the green signal given by the experiment controller. We did not employ any external clocks as the timestamp of the videos were accurate enough to gather data for the experiment. We also ensured to not give out any instruction related to the design of the original website or the prototype to avoid the biases.

The experiment was conducted online with the help of video conferencing tool, Zoom. Each participant were asked to share their screen and turn-on their videos to visually understand their emotions while interacting with the platform. Once the green signal was given, the participants were asked to start their interactions with the respective platforms. Their task was timed until the payment page was displayed. We ensured to remove as many biases as possible and conducted the experiment in a controlled setting.

Since the overall process of the original website did not have the scope multiple tasks, we created a mega task that would roughly consume 5 minutes of the user's time. This task was thus carefully designed and worked by us before adding it to our script

- **Task - Train journey ticket**

*Book a confirmed train ticket for 3 passengers travelling from Bhopal Jn (BPL) to KSR Bengaluru (SBC), on the 26<sup>th</sup> of April. Ensure that the tickets booked are for air-conditioned compartments with berths, and that the total journey time doesn't exceed 30 hours. Enroll in the travel insurance. Ensure that at least one lower berth is booked, and that all the tickets are booked in the same compartment. Payment must be done using a Credit Card.*

- **Questionnaire:**

At the end of this task, the participants were given a link to system usability scale (SUS) Questionnaire where they filled a set of 10 questions. Each question was answered on a scale of 1 to 5, where 1 corresponds to the participant strongly disagreeing with the mentioned statement, and 5 corresponds to the participant strongly agreeing with the mentioned statement. The questions were reverse coded, meaning that in the ideal case scenario, the best performing responses will have scores alternating between 1 and 5 scales.

The image shows a Google Forms interface for a User Review questionnaire. It contains 10 questions, each with a 5-point Likert scale from 'Strongly Disagree' to 'Strongly Agree'. The questions are:

- I think I would need Tech Support to be able to use this system. \*
- I found the system very cumbersome to use. \*
- I think that I would like to use this system frequently. \*
- I found the various functions in this system were well integrated. \*
- I found the system unnecessarily complex. \*
- I thought there was too much inconsistency in the system. \*
- I felt very confident using the system. \*
- I need to learn a lot of things before I could get going with the system. \*
- I thought the system was easy to use. \*
- I would imagine that most people would learn to use the system very quickly. \*

At the bottom, there is a 'Next' button, a progress bar indicating 'Page 1 of 2', and a 'Clear form' link. The footer mentions 'This form was created inside of Arizona State University' and 'Google Forms'.

Apart from the SUS questionnaire, the user was also asked to fill out one-easy question(OEQ) to gather the overall experience of the user with one question. This is one metric we collected but weren't sure if it would provide any valuable statical data.

The image shows a Google Forms interface for a single question (OEQ). The question is: 'Were you able to complete your task on the system with convenience? \*'. There are two radio button options: 'Yes' and 'No'. At the bottom, there are 'Back', 'Submit', and 'Clear form' buttons, along with a progress bar indicating 'Page 2 of 2'. The footer mentions 'This form was created inside of Arizona State University' and 'Google Forms'.

- **Metadata**

The participants were asked about their overall opinion about their interaction. Useful suggestions were noted to see if we could gather some useful design inspiration out of it. In addition to that, we had created a spread sheet to collect the meta data of the participants like Age, average daily usage of gadgets, gender and other demographic related information.

### **What metrics we collected**

This usability testing was conducted with the aim to gather the following metrics:  
(Before proceeding, please note that the participant No from 1 to 6 corresponds to original website and the rest corresponds to the redesigned prototype)

#### **1. Time Taken:**

We had recorded the interactions of the user using zoom and other screen recording technologies. From the recorded video, we stripped out the unnecessary parts and only included the interactions from the time the mouse was moved till the end of the experiment. The difference in the timestamp of the video provided us the overall time taken to complete the experiment. We also tried to capture the screen times of each page, in order to analyze the interactions at a page level.

<b>Participant No</b>	<b>Time Taken (in secs)</b>
1	566
2	312
3	394
4	612
5	289
6	422
7	387
8	429
9	465
10	332
11	268
12	601

Table 1: Showing the task time in seconds for all users

## 2. SUS Score:

After the completion of the experiment, the user was asked to fill out a SUS questionnaire. This questionnaire was filled immediately and the users were not given any instructions to it. We did not reveal the reverse coding of the questionnaire to find the insincere participants. However, we were fortunate to have all honest and sincere opinions in the SUS survey.

Q. No	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6
1	3	5	5	5	2	5
2	4	4	3	4	5	3
3	1	5	5	4	2	2
4	3	4	3	5	5	4
5	4	5	3	4	1	2
6	4	5	1	5	5	4
7	2	5	3	5	3	2
8	3	5	1	5	4	3
9	4	5	3	5	1	3
10	1	5	3	4	5	2

Table 2: This table shows the SUS score of the participants on the original website

Q. No	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6
1	3	5	5	5	2	5
2	4	4	3	4	5	3
3	1	5	5	4	2	2
4	3	4	3	5	5	4
5	4	5	3	4	1	2
6	4	5	1	5	5	4
7	2	5	3	5	3	2
8	3	5	1	5	4	3
9	4	5	3	5	1	3
10	1	5	3	4	5	2

Table 3: This table shows the SUS score of the participants on the prototype

Participant No	SUS Score
1	29
2	48
3	30
4	46
5	33
6	30

Participant No	SUS Score
7	29
8	48
9	30
10	46
11	33
12	30

Table 4: Shows the total SUS score of all the participants

### 3. OEQ Score:

Once the SUS questionnaire was completed, we also requested the user to fill out one easy question which was in the page 2 of the same google form provided to them. So technically, it appears to the users that they are filling the same form but we are collecting more than one metric out of it. This OEQ score might not capture all the intricacies of the system but can provide some idea about who the overall experience of the user was. This we believe is very crucial for any website because this determines if the user will again the website or not.

Participant No	OEQ Score
1	1
2	1
3	0
4	1
5	0
6	0

Participant No	OEQ Score
7	0
8	1
9	1
10	1
11	1
12	1

Table 5: Shows the total OEQ score of all the participants

### What improvements were made to site

Based on the UI/UX theories and Usability principles, the prototype was iteratively improved in terms of the process and the design. Some of the improvements were related to replacing the obsolete components with newer version of components that improve the overall design of the page. A few other improvements involved using the design principles to ideate a better placement and the design for the elements. We would like to present this section in a page-wise manner to exactly demonstrate the improvements that we made to the site based on the design principles and theories of human-computer interaction.

- **Home Page Improvements:**

*Original:*

*Prototype:*

The Home page of the website which provides the users with the form components to search for the trains (that adheres to his plan and comfort) occupies only around 35% of the screen space. The Main process of this application lies in this search and the time taken to input the values and perform the search functionality can influence the task time to a certain extent. According to this law, the amount of time required for a person to move a pointer to a target area is a function of the distance to the target divided by the size of the target. Therefore, the form component and its child elements on the prototype takes higher dimensions in terms of width as well as height than that of the original website. The

Horizontal spanning of the form component has given the user easier accessibility to the form elements and the time taken to reach these elements from anywhere on screen is almost equal due to the centering of this component. Apart from this, the prototype is given a slight bluish tinted background in order to stick to the theme of the website. It is also known that the extrinsic cognitive load on the user's brain increases if we decorate the important details with a lot of unnecessary content. Here, the main header containing the navigation tab bar is completely cluttered with multiple options which are not frequently visited by the user. Hence, the prototype is designed to only project the navigation items that are often visited by the user and other options that are less frequented are hidden inside the more option, which can be clicked to populate the dropdown menu containing the rest of the options.

- **Search Results Page Improvements:**

*Original :*

The original interface shows a search for 5 results for Bhopal JN to KSR Bengaluru on Wed, 18 May 2022. The left sidebar contains filters for Journey Class (AC First Class (1A), Second Sitting (2S), Sleeper (SL), AC 2 Tier (2A), AC 3 Tier (3A)) and Train Type (OTHER, RAJDHANI). The main results section displays the SBC RAJDHANI (22692) train, which runs on M T W T F S S. The departure is at 03:55 from Bhopal JN on Wed, 18 May, and the arrival is at 05:20 at KSR Bengaluru on Thu, 19 May. The train schedule shows AC First Class (1A) at ₹ 5865 (WL1), AC 2 Tier (2A) at ₹ 4690 (AVAILABLE-0004), and AC 3 Tier (3A) at ₹ 3440 (AVAILABLE-0076). Dynamic Pricing is applicable in this train, and Food Choice is Optional.

*Prototype :*

The prototype interface shows a search for 6 results for Bhopal Junction to KSR Bengaluru on Tue, 26 April 2022. The left sidebar contains filters for Departure Time from Bhopal Junction (Time: 12:00, AM/PM) and Arrival Time from KSR Bengaluru (Time: 12:00, AM/PM). The main results section displays the DEE YPR Durgam Cheruvu train, which runs on S M T W T F S. The departure is at 08:00 from Bhopal Junction on Tue, 26 Apr 21, and the arrival is at 08:10 at KSR Bengaluru on Wed, 27 Apr 21. The train schedule shows AC Tier (3A) at ₹ 3430 (Available), AC Tier (2A) at ₹ 4660 (Waiting List - 1), and AC Tier (1A) at ₹ 5851 (Waiting List - 2). A Book Now button is present.


Firstly, the original website uses the obsolete and old-fashioned design elements including buttons, section-boxes and other crucial components. Moreover, the filter section on the original website does not adhere to the design principles like law of common regions, where the boundaries of the website aren't very clear. Thus, in the redesign of the prototype, the boundaries are made more clear using shadows, borders and background variations. Apart from that, the filter columns on the original website have poor usage of



components, like incase of train timings, only the check-list for certain range is given rather than providing a filter option for the complete result. Thus, in the prototype, we have used drop-down and sliders to give a better interactions for the user.


## Passenger Details Page Improvements:

*Original:*



Proudly announce **IRCTC** as one of the authorised Air Ticketing agency for booking of Air Ticket on official Tour for **Government Employees**

Visit [www.air.irctc.co.in](http://www.air.irctc.co.in) for more details



1

Passenger Details

2

Review Journey

3

Payment

Senior Citizen concession not allowed for this Train/Quota/Class. Divyaang/Journalist may check after entering details.

**SBC RAJDHANI (22692)**

03:55 | BHOPAL JN  
Tue, 26 Apr

— 25:25 —

05:20 | KSR BENGALURU  
Wed, 27 Apr


AC 2 Tier (2A) | General

Boarding Station | BHOPAL JN | Arrival: 03:45 | Departure: 03:55 | Day: 2 | Boarding Date: 26 Apr 2022

Fare Summary

Ticket Fare ₹ 4405

Total Fare ₹ 4405



Waiting for nadead2.noodlesrvndication.com...

Passenger Details

Saket81MaleIndiaLowerNon Veg

Deesksha25FemaleIndiaUpperNon Veg

RuhiBelow one yearFemaleTickets is not to be issued

+ Add Passenger+ Add Infant With Berth+ Add Infant Without Berth

Contact Details


(Ticket details will be sent to email- ri\*\*\*\*\*@gmail.com and registered mobile number 89\*\*\*\*\*65)

91 Passenger mobile number\*



Proudly announce IRCTC as one of the authorised Air Ticketing agency for booking of Air Ticket on official Tour for **Government Employees**

Visit [www.air.irctc.co.in](http://www.air.irctc.co.in) for more details

## Prototype:

 Indian Railway Catering and Tourism Corporation

[Trains](#) [Buses](#) [Flights](#) [Hotels](#) [More](#)



1

Passenger details

2

Review Journey

3

Payment

### Journey Details

☒ **Complete your booking**

#### Passenger Details

[+Add Passenger](#)

#### Contact Details\*

#### Fare Summary

Ticket Fare	₹ 3430
<b>Total Fare</b>	<b>₹ 3430</b>

In this page, the original website does not clearly distinct the elements that are placed on the screen. According to the law of common regions, the items that are present inside the distinct boundary are perceived as a group and assumed to share some common characteristic or functionality. Therefore, we have designed our prototype with distinct boundaries via shadowing, colour scheming and border distinction UI techniques. This is believed to help the user easily distinct and group the content on the screen. Apart from that, unimportant information like advertisements have been pushed below the screen to ensure that users see the useful information first and then the other decorations needed for the site's business model. One other very important issue with the original website is the non-presence of navigation header to quickly move to the other sections of the page. From the concepts of HCI, we know that the user should be able to quickly navigate to his page of wish and also should be able to skip the pages if not necessary. The prototype adheres to this principle by providing a back button and a forward button in each page apart from giving the main header component to all the page to improve the usability and the consistency of the process.

- **Review Details Page Improvements:**

*Original:*

**Passenger Details**

**1** Saket 81 yrs | Male | Non Veg | India | Lower

**2** Deesksha 25 yrs | Female | Non Veg | India | Upper

Your ticket will be sent to ri\*\*\*\*\*@gmail.com / 89\*\*\*\*\*65

[View Cancellation Policy](#)

<https://www.googleadservices.com/pagead/ack?sa=L&ai=COXfwMD5eYqbe...>

**Fare Summary**

Ticket Fare	₹ 8810
Convenience Fee (Incl. of GST)	₹ 35.4
Travel Insurance (Incl. of GST)	₹ 0.7
<b>Total Fare</b>	<b>₹ 8846.1</b>

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*Prototype:*

**Indian Railway Catering and Tourism Corporation**

[Trains](#) [Buses](#) [Flights](#) [Hotels](#) [More](#)

**Passenger details** **Review Journey** **Payment**

Train Name & No	Depart	Duration	Arrive	Class
DEE YPR DURONTO (12214)	08:00 Bhopal Junction Tue, 26 Apr '21	24h 10m View Train Schedule	08:10 KSR Bengaluru Wed, 27 Apr '21	AC 2 TIER (2A)

**Passenger Details**

**1** Johnathan 67 yrs Male India

**2** Rhea 31 yrs Female India

Your ticket will be sent to ri\*\*\*\*\*@gmail.com / 9\*\*\*\*\*95

[Back](#) [Continue](#)

**Fare Summary**

Ticket Fare	2 * ₹ 4650
Convenience Fee (Incl. of GST)	₹ 17.7
Travel Insurance (Incl. of GST)	2 * ₹ 0.35
<b>Total Fare</b>	<b>₹ 9338.4</b>

The prototype of this page has been designed based on the aesthetic-usability effect. Since the process on the original website and the prototype did not have much scope for improvement, we wanted to improve the overall aesthetic of the design. This will trick the users mind into thinking that the application is more usable. This is what is stated in aesthetic-usability effect. We firstly ensured to give at least a minimal contrast to background of the prototype to project the important components of the screen in a better fashion. To aid the contrast, we selected a pleasant gray which also slightly makes up the

logo of the website. This will ensure that the colours on the page are thematically designed. Apart from this, we have redesigned the way the content is projected on the screen. For example, in the original website, it is hard for user to find out which is train name or what is the destination easily. This is due to fact that the original website does not include any related heading for the displayed content. However, in case of the prototype, we have ensured to provide that without cluttering the overall design. This will help the user easily locate the needed details without much hassle.

### 3. Overall Findings & Recommendations

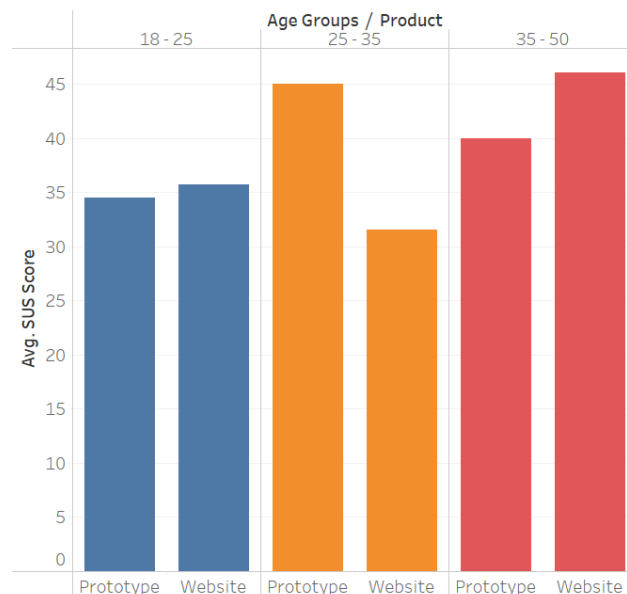
#### Results

##### 1. Based on the Metric: SUS Score

##### 1.1) Based on Age demographics:

Age	Original	Prototype
18 - 25	35.67	34.5
26 - 35	31.5	45
35 - 50	46	40

Table 6: Showing the SUS score based on the age



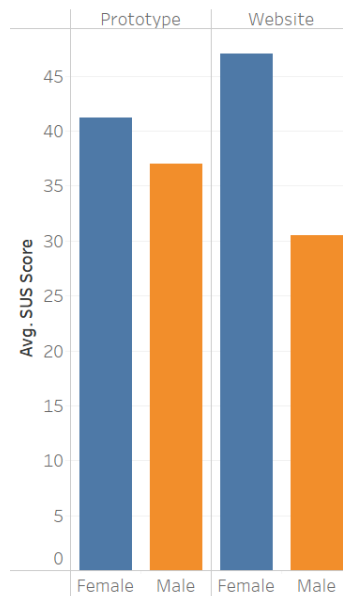
Plot 1: Showing the bar graph comparison between prototype and website based on time taken and Age-based user group

The  $t$ -value is -0.40041. The  $p$ -value is .709322. The result is *not* significant at  $p < .05$ .

1.2) Based on Gender demographics:

Gender	Original	Prototype
Male	30.5	37
Female	47	41.25

Table 7: Showing the SUS score based on the gender



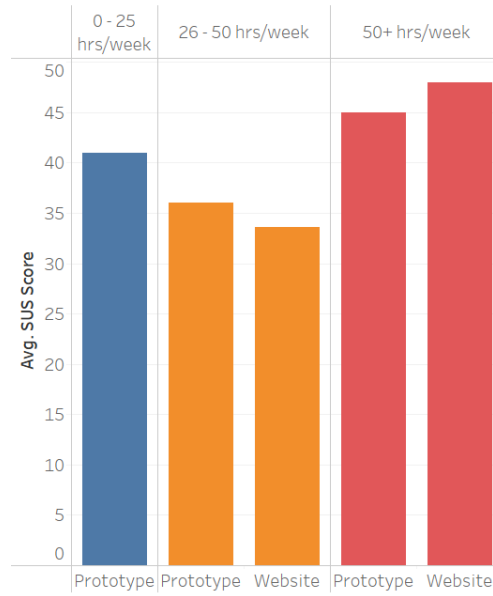
Plot 2: Showing the bar graph comparison between prototype and website based on time taken and gender-based user group

The  $t$ -value is -0.04402. The  $p$ -value is .96889. The result is *not* significant at  $p < .05$ .

1.3) Based on Avg. Weekly Gadget Usage demographics:

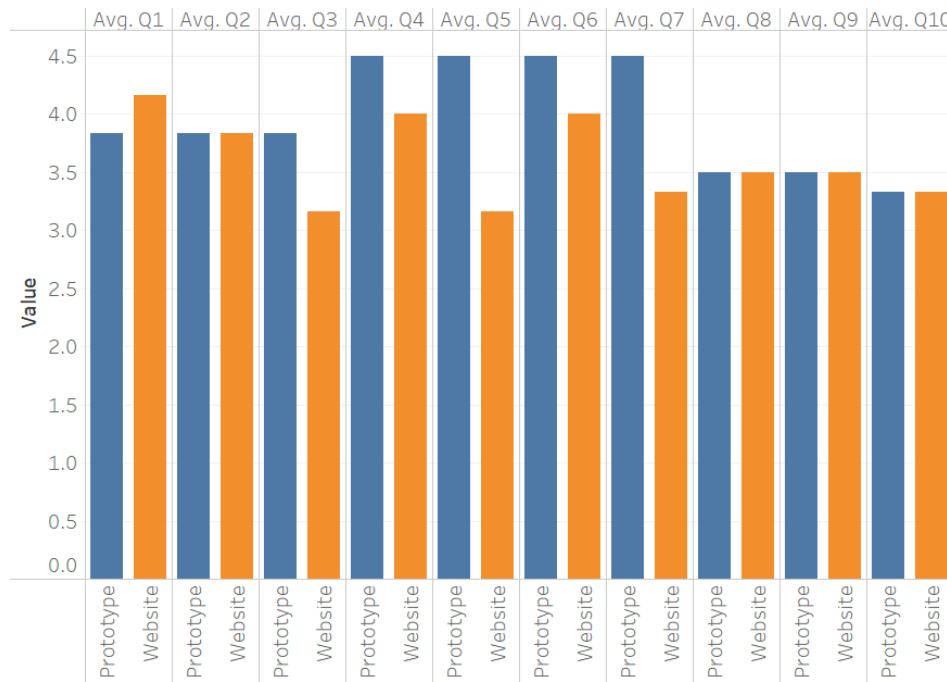
Avg. Gadget Usage	Original	Prototype
0 - 25 hrs	37.5	41
26 - 50 hrs	31	36
50+ hrs	48	45

Table 8: Showing the SUS score based on the avg. weekly gadget usage



Plot 3: Showing the bar graph comparison between prototype and website based on time taken and gadget usage-based user group

The  $t$ -value is -0.32767. The  $p$ -value is .759597. The result is *not* significant at  $p < .05$ .



Plot 4: Showing the bar graph comparison between prototype and website based on each question answered in the SUS Questionnaire

## 2. Based on the Metric: OEQ Score

### 2.1) Based on Age demographics:

Age	Original	Prototype
18 - 25	0.33	0.5
25 - 35	0	1
35 - 50	1	1

Table 9: Showing the OEQ score based on the age

The  $t$ -value is -1.15345. The  $p$ -value is .312957. The result is *not* significant at  $p < .05$ .

### 2.2) Based on Gender demographics:

Gender	Original	Prototype
Male	0.25	0.5
Female	1	1

Table 10: Showing the OEQ score based on the gender

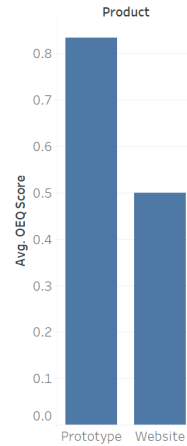
The  $t$ -value is -0.27735. The  $p$ -value is .80755. The result is *not* significant at  $p < .05$ .

### 2.3) Based on Avg. Weekly Gadget Usage demographics:

Avg. Gadget Usage	Original	Prototype
0 - 25 hrs	1	1
26 - 50 hrs	0	0.66
50+ hrs	1	1

Table 11: Showing the OEQ score based on the avg. weekly gadget usage

The  $t$ -value is -0.62487. The  $p$ -value is .565933. The result is *not* significant at  $p < .05$ .



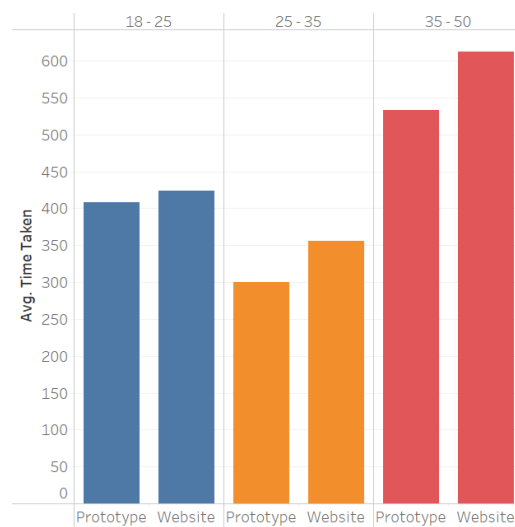
Plot 5: Showing the bar graph comparison between prototype and website based on average OEQ Score

### 3. Based on the Metric: Task Time

#### 3.1) Based on Age demographics:

Age	Original	Prototype
18 - 25	424	400
25 - 35	355.5	300
35 - 50	612	533

Table 12: Showing the task time based on the age





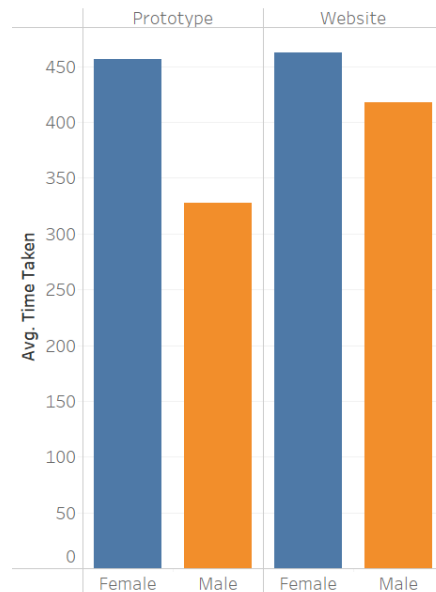
Plot 6: Showing the bar graph comparison between prototype and website based on time taken and Age-based user group

The  $t$ -value is 0.51724. The  $p$ -value is .632277. The result is *not* significant at  $p < .05$ .

### 3.2) Based on Gender demographics:

Gender	Original	Prototype
Male	427.5	327.5
Female	435	456.75

Table 13: Showing the task time based on the gender



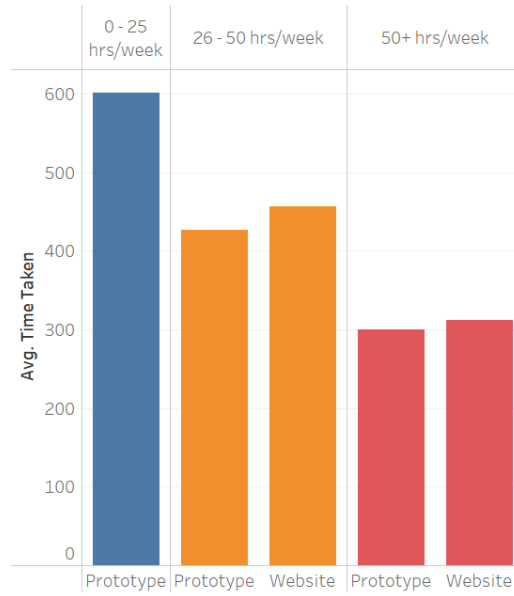
Plot 7: Showing the bar graph comparison between prototype and website based on time taken and gender-based user group

The  $t$ -value is 0.6044. The  $p$ -value is .607011. The result is *not* significant at  $p < .05$ .

### 3.3) Based on Avg. Weekly Gadget Usage demographics:

Avg. Gadget Usage	Original	Prototype
0 - 25 hrs	589	601
26 - 50 hrs	427	368
50+ hrs	312	300

Table 14: Showing the task time based on the avg. weekly gadget usage



Plot 8: Showing the bar graph comparison between prototype and website based on time taken and gadget usage-based user group

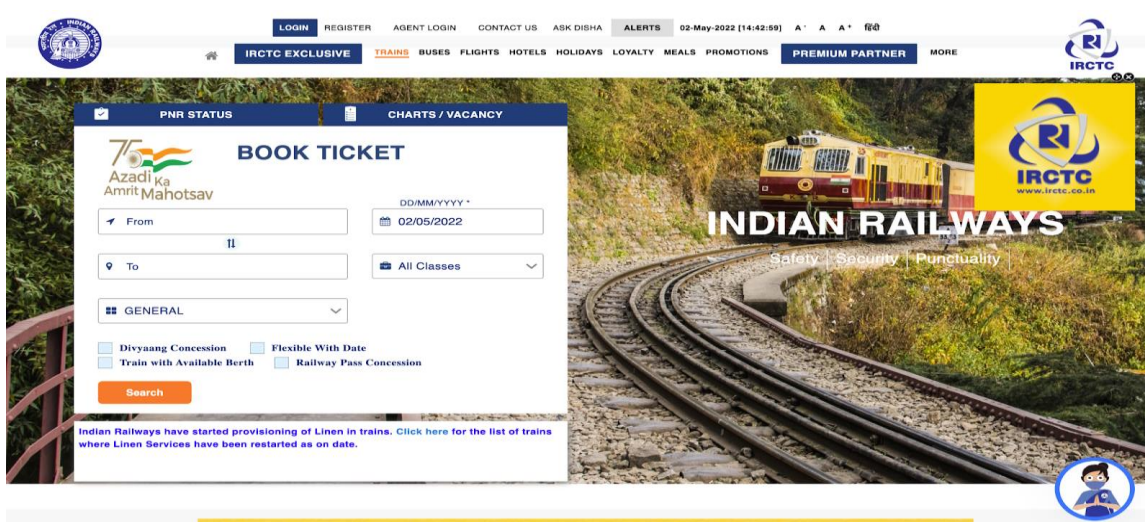
The  $t$ -value is -0.4341. The  $p$ -value is .686603. The result is *not* significant at  $p < .05$ .

## Findings in Task One - Train journey ticket

### Finding 1:

The overall aesthetics and the user experience of the prototype is much better when compared to the original website. The participants tend to work faster on the redesigned site than the original website.

### Original Design:



## Prototype Design:

The screenshot displays the IRCTC website's search interface. At the top, the IRCTC logo and name are on the left, and navigation links for Trains, Buses, Flights, Hotels, and More are on the right, along with a LOGIN/REGISTER button. The background features a scenic image of a train in a forest. The search form includes fields for From Destination, To Destination, Date of Journey, All Classes, and Quota. Below these are radio buttons for Flexible with Date, Only Train with available berts, Divyaang Concession, and Railway Pass Concession. A Recent Searches section shows two entries: Chennai Central to Coimbatore Central and Bengaluru Cantt to Hyderabad Central. A Show Trains button is at the bottom.

Supporting Evidence	Recommendations/Comments
The OEQ Score for the prototype is 0.83 on average but whereas for the original website it stands at 0.5	Enhancing the overall look and feel of the website has helped the prototype to score well on the overall experience. This could be a bias due to aesthetic-usability effect. However, at the end of the users has preferred working on the prototype and that is what is important.
The average time spent on the prototype is 413 seconds and that on the website is 432 seconds	Overall interaction time of the prototype has reduced due to careful working of the search algorithm embedded in the search box for the destinations. The search option is well enhanced when compared to the prototype. Moreover, the main form that helps in searching the trains is increased in dimension to decrease the time taken to move the mouse pointer to the targeted location.
Users have given an average SUS score of 36 for the original site and a SUS score of 37.9 for the redesigned site	Though the SUS score for the redesign is more than that of the original, it is not that significant to make an actual comment. There could an involvement of bias when newer design is projected to the user.

## Finding 2:

The users of age group from 26 years to 50 years unanimously preferred the prototype over the original.

## Original Design:

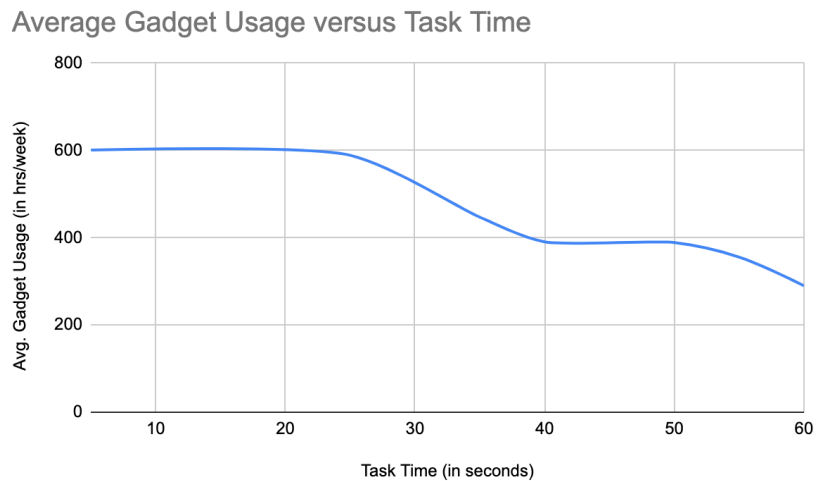
## Prototype Design:

Supporting Evidence	Recommendations/Comments
The OEQ Score for the prototype is 1 on average but whereas for the original has done poorly with a score of 0 from all 3 participants.	This could be due to Jakob's law, (i.e) the users sent some significant amount of time on other sites. Since, the prototype was carefully designed to include features and designs from similar travel websites, the user group of age from 26 – 40, could have correlated with the prototype design than the original
The QEQ Score for the prototype is 45 on average and the original has scored 31.5 on this metric.	This again suggests that the participants of age from 26 – 40 have liked the design of the prototype. The difference of score between the design is around 14.5 which is very relevant and significant for the final inference
The average time spent on the prototype is 300	The prototype design has a consistent modern look with design inspirations from multiple other travel websites.

seconds and that on the website is 355.5 seconds.	Therefore, the users had to just recognize the design rather than recalling it. This constituted for a lesser task time on the prototype than the original
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### Finding 3:

The results gathered from the time on task correlates with a real world meaning. In the real world, the users who tend to spend more time on gadgets are mostly likely to complete a task faster than the users who are novice when it comes to gadgets.



Supporting Evidence	Recommendations/Comments
The time on task for the user group who spent from 0 – 25 hours on gadgets weekly have an interaction time of 601seconds but whereas the participants who has spent more than 50+ hours have a task time of 300 seconds.	This is also proves that the experiment conducted has proved useful and a real world meaning can be derived out of the analysis.

### Finding 4:

Some of the users have preferred the design of original website at certain pages than that of the prototype. For example, the participants who are above 50 years to age wanted the design of the original than the redesigned one.

### Original Design:

<b>AC First Class (1A)</b> <b>WL1</b> <b>₹ 5865</b> ⓘ	<b>AC 2 Tier (2A)</b> <b>AVAILABLE-0004</b> <b>₹ 4690</b> ⓘ	<b>AC 3 Tier (3A)</b> <b>AVAILABLE-0076</b> <b>₹ 3440</b> ⓘ
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### Prototype Design:

<b>AC Tier (3A)</b> <b>₹3430</b> <i>Available</i>	<b>AC Tier (2A)</b> <b>₹4660</b> <i>Waiting List -1</i>	<b>AC Tier (1A)</b> <b>₹5851</b> <i>Waiting list - 2</i>
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Supporting Evidence	Recommendations/Comments
The time spent on the search results page, i.e the second page of the original website is much lesser than the redesigned site.	Initially, we believed that the design of search results page should employ only the themed colors of the overall site. This we thought would enhance the look of the website. However, certain users, especially the older people have found it hard to differentiate the important information. They preferred having different colors than the themed ones to project the useful information especially the price, availability etc. In fact, the fonts on the redesign could also have been better.
The difference of the average total time spent on this page between the prototype and the original is around 4 seconds, which constitute nearly 20% of the decrease in time for the prototype design	Overall interaction time of the prototype has reduced due to careful working of the search algorithm embedded in the search box for the destinations. The search option is well enhanced when compared to the prototype. Moreover, the main form that helps in searching the trains is increased in dimension to decrease the time taken to move the mouse pointer to the targeted location.
One user's finding have to be discarded due to the fact that he was struck entirely on the prototype for a very long time. This outlier could have influenced the overall statistics if not removed. However, this is	The prototype could not implement the chat bot or help and documentation in a larger scale like that incase of the original website, due to the scope of the project. Maybe, the floating icon that will help the users chat with an AI or support team could been implemented in the prototype.

a significant qualitative observation that was gathered from the experiment. This user gave a SUS score of 20, which is significantly lower when compared to the other users. Therefore, we just used his data for qualitative analysis	
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#### **4. Conclusion:**

The study of this experiment has successfully concluded that the users performed well on the prototype when compared to the original design. Though, the T-scores and P-scores have not been certainly significant, the prototype has certainly scored well on the users opinion poles like SUS questionnaire and One Easy Questionnaire. Overall result of the study is that the redesigned site has statically performed good in certain areas and has equaled the performance of the original in some situations.