Heuristic Evaluation

The following Heuristic Evaluation report was done for the Indian Railways website www.indianrail.gov.in in 2015. This website is used by many Indians daily to book railways tickets online, so that they can travel from one city to another. In India, the railway network is extensive and connects places that are sometimes not accessible by other means of transport such as air travel. It is not always viable to travel by car for long distances. Travelling by trains is commonplace in India.
The Indian railways is state-owned and operated by the Government of India. If this website was to not work satisfactorily, the Indian Government would not only lose out on potential customers, it would also lose out on revenue.
Therefore, this heuristic evaluation report should help identify some of the usability and accessibility problems present in the website. Specifically, the homepage of the website and the onboarding experience provided to the users.

Figure1. Homepage of http://www.indianrail.gov.in

For this report, the 10 Usability characteristics of Jakob Nielsen and the 13 Accessible Web Design Approaches were used as guidelines.
The **HERA** tool (http://www.sidar.org/hera/index.php.en) was used to find discrepancies in the

HTML code.

Web Accessibility Problems:

Problem 1: Alternate Text

On the landing page of the website there is an image (Figure 2) present. This image takes up the central space on the website. There is no alternate text present to describe the image. This alternate text would have been helpful to users with visual impairments and others who use screen readers.
Although this image does not seem to provide important information, it does give an idea of how a train station looks like in India. This could be helpful to people who are the visiting the country for the first time and want to travel the country by rail.
Severity: 1

Fix: Provide alt text in the HTML code to describe the image present on the website, so that users with screen readers can get this information.

Figure 2. The image on the landing Page (Highlighted).

Problem 2: Site Maps, Site Search

As seen in Figure 1, there is no search option available anywhere on the homepage. The

homepage is where most customers or users tend to first visit when using a website. People with cognitive and learning disabilities (such as dyslexia) might face challenges when using a website. They could easily get distracted by unnecessary information (like advertisements) on the webpage and will benefit if there is a search option. This search option, if implemented properly could provide only relevant information to user.
On a side note, the search function could help other users (without cognitive or learning disabilities) to get access to relevant information faster on the website.
Severity: 4

Problem 3: Cognitive / Learning Disabilities

There are two flashing GIF images present on the webpage. Also, there is scrolling text (<Marquee> HTML code) at the bottom of the webpage. These elements can cause distractions, which might affect how users with learning disabilities use the website.
People suffering from cognitive disabilities could also find it difficult to access the scrolling text with links, as it is in constant motion, therefore making the it difficult to click the links in it.
Severity: 2
Fix: Remove unnecessary flashing GIF images and utilize the space on the webpage better to accommodate necessary links and text, rather displaying them as scrolling text.

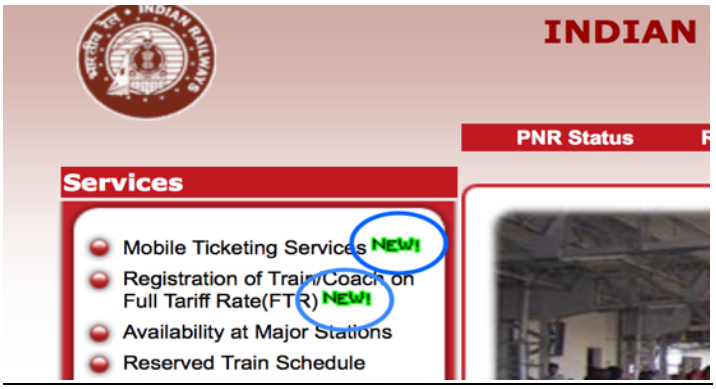

Figure 3. The Flashing GIF Images.

Figure 4. The scrolling text (The Central Railway & Western Railway are links present in the text)

Problem 4: Headings as Semantic Structure

There are no headers (for example <H1>) used in the HTML code. These headers are used in the HTML code to specify headings in order of importance. The headers are essential for people using screen readers as they provide an idea about the different headings on the webpage. These headings are also, significant as they define the structure of the webpage. Once again, users with visual impairments will find themselves at a disadvantage as they cannot navigate the webpage by structure, that is, go to different levels on the same webpage with ease.
This is a serious accessibility issue and should definitely be addressed.
Severity: 4

Fix: Add Headers in order of importance to the HTML code to give a better outline to the webpage and also to make the website more accessible.

Problem 5: Keyboard & Navigation

It was not possible to interact with the website with the “tab” button on the keyboard. The website did not respond to other keyboard commands and shortcuts.
Not everyone is able to use a mouse. People suffering from motor disabilities find it difficult to use a mouse, and use specialized input devices that simulate keyboards. Sometimes it hard to click certain elements on a webpage that might be animated or moving.
Severity: 3

Usability Problems:

Problem 1: Help and documentation

There is no link or button available on the website for Help (As seen in Figure 1). Also, no documentation is provided to guide or help the user while accessing the website. This makes the website difficult to use for a user who might have learning disabilities such as dyslexia and might require further assistance in order to understand how to use the website.
Severity: 2

Fix: A help page could be created, providing a guide as to how to use the website. Also, a (downloadable) PDF could be provided, so that people with access to screen readers can also have easy access to the guide.

Problem 2: Recognition rather than recall

While using the website, it was noticed that to access some of the options you had to move your mouse over certain links (Figure 5). It was not very evident that these were links that showed options until you moved your mouse over them. This makes it difficult for the user to use these features during the very first visit to the website, as the user might not be able to easily recognize or find the options.
The website should make options more visible to the user. This would make it easier for people with cognitive and learning disabilities to access those options, without wasting time.
Severity: 3

Fix: Better visual cues could be used to indicate that there are options which are accessible. Also, they could design it such that these options are also available to people using screen readers or keyboards.

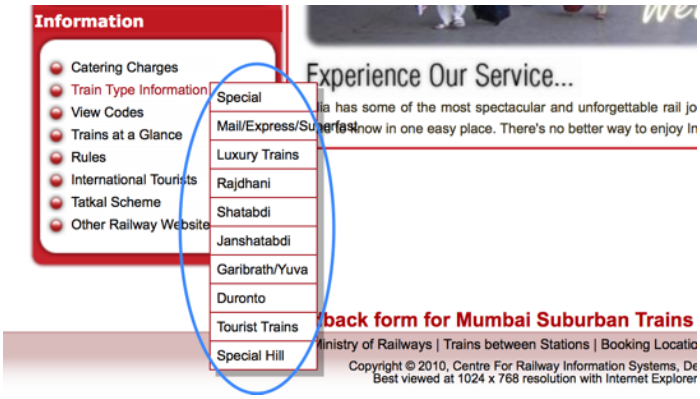

Figure 5. Options that are visible only after the mouse is hovered over the link.

Problem 3: User control and freedom

The user control provided by the website is poor. When a user clicks on a link provided in the options as shown in Figure 6, the user is taken to a webpage which is opened in another tab in the browser. This webpage (Figure 7) does not show which link the user had pressed to get to the current webpage. If the user has clicked on the wrong link, the user will have to close the current tab, go back to the tab where the homepage (of the website) is open and then navigate to the link he wanted to access (which is a tedious process).
Severity: 2

Fix: Breadcrumb navigation could be used to provide more control for the user. If something unsatisfactory happens, the user can easily go back to the previous link or even the homepage easily. Also, providing an “undo” or “go back” button could be helpful (The breadcrumb navigation could also improve visibility of system state).

Figure 6. The link which is accessed.

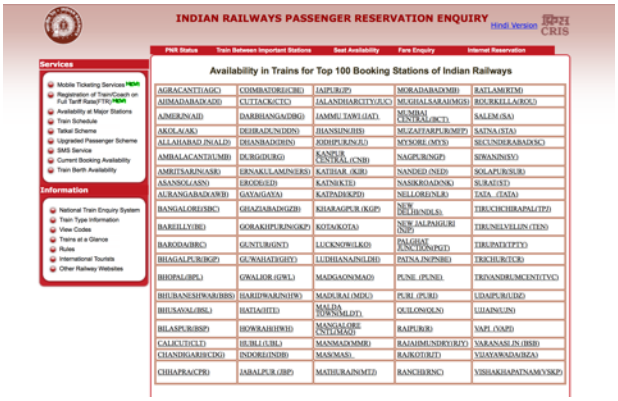

Figure 7. Webpage which is opened in a New tab.

<u>Problem 4:</u> Help users recognize, diagnose, and recover from errors

Not only is the feedback link not clearly visible (as it is present at the bottom of the page with a small font – Figure 8), it also does not work properly. Once you press the link, it takes you to a webpage that shows the error in code as shown in Figure 9. This is a problem, as most users might not have prior programming language and will have no idea as to what went wrong. Also, it is not easy to recover from said error, as no other option is present on the error page.
Severity: 2

Fix: The HTML code could be modified to handle common errors that might arise, and also describe the error in layman's term so that most users can understand what went wrong. Providing a solution to recover from the error could also be helpful.

Figure 8. Feedback not clearly visible

Figure 9. Error Message shown as code.

Problem 5: Aesthetic and minimalist design

The website is marred with bad design. As shown in Figure 3, the flashing GIF images are unnecessary and do not contribute constructively to the website. The scrolling text (shown in Figure 4) could cause problems for people with cognitive and learning disabilities. It also makes the design not minimalistic in nature by providing excess graphics which are not necessary. Furthermore, the website does not have a responsive web design as shown in Figure 10, and therefore cannot be viewed clearly on smart mobile devices.
Severity: 3

Figure 10. The best view resolution provided by website – 1024 x 768.

Conclusion

Overall, the web accessibility features provided by this website is poor. Basic and common features such as Site search are not provided. Also, there are fundamental problems with respect to the HTML code, where Header Tags are not used. The design of the website is outdated and not user friendly, especially for people with cognitive disabilities.
This evaluation was conducted so that some of the problems faced by people using this website can be prevented.