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Assignment Title: User Experience (UX) Design Analysis

Module Title: User Experience Design

Module Code: ACCA6034

For this project we are tasked with evaluating a chosen product's UX Design and provide recommendations for improvements based on established UX Design principles.

Product Selection

For this section I must choose a digital product to analyse.

The digital product that I have chosen to analyse is the website of **“Flightradar24: Live Flight Tracker – Real-Time Flight Tracker Map”**. [1]

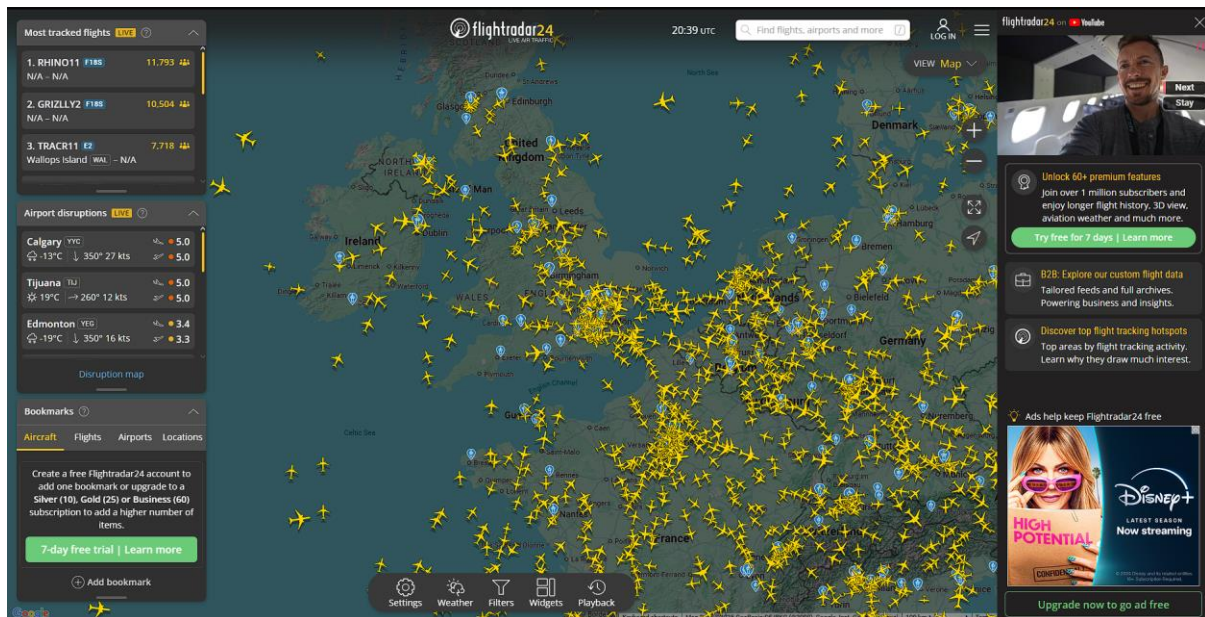
I specifically chose the website version rather than the mobile app version because the website is more easily accessible as I'm doing the work on a computer. I believe this website is complex enough to do a detailed analysis of the UX Design because it features many tabs and links inside the website.

Initial Review

In this section I will be giving a detailed review of Flightradar24 – this will include my initial impressions of the website, the websites ease of navigation, and its overall User experience, I will then end this section with a summary of my initial impressions of the website.

My first impression

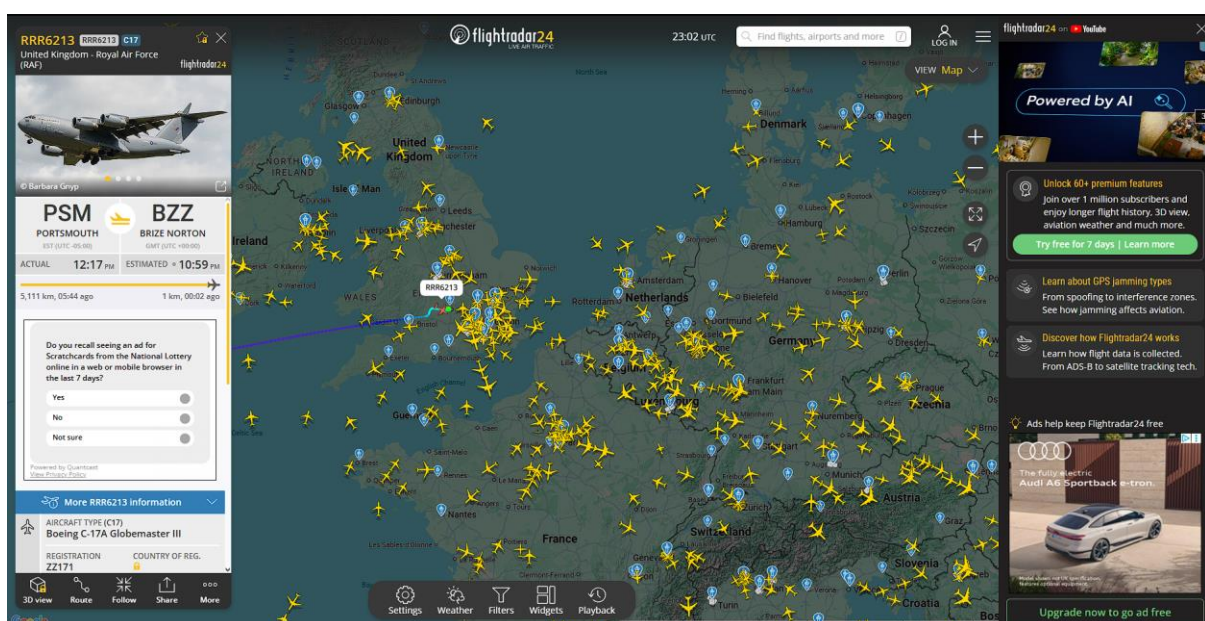
When you open the website, you are immediately greeted with this user interface:



[1]

At first glance, the Flightradar24 website does objectively look overwhelming. The user is first presented with a cluttered map with hundreds (maybe thousands) of differing plane icons over a map of western Europe – this may only be showing a map of western Europe because of the location I am opening the website from. As soon as you open the website, your eyes will first be drawn to the yellow plane icons, yellow stands out and contrasts with the darkened version of the standard world map. After a few seconds you will begin to realise the plane icons are moving. This may prompt the user to then click the plane icons out of curiosity.

Upon clicking a random plane icon, the left side of the screen changes and you are then presented with this:

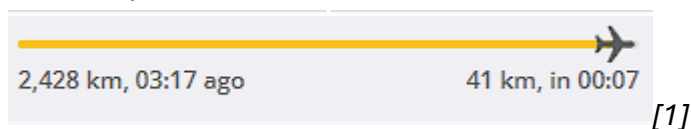


[1]

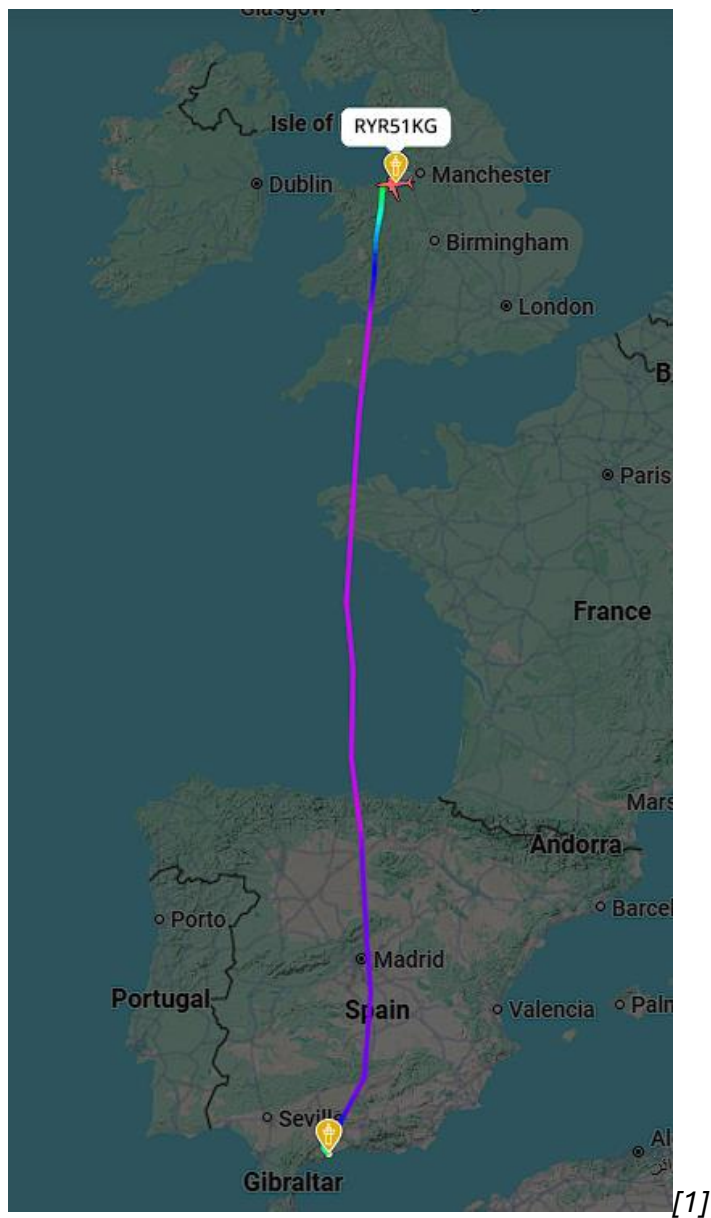
In the top section you will find details about the aircraft you are tracking such as the Aircraft Photo (if available), its flight number, callsign, route (Origin and Destination (If available)), aircraft type, and its live stats such as altitude, speed, vertical speed, and heading, there are a few more things it shows too – although some of these options are locked behind a premium pay wall.

The things it shows for free are:

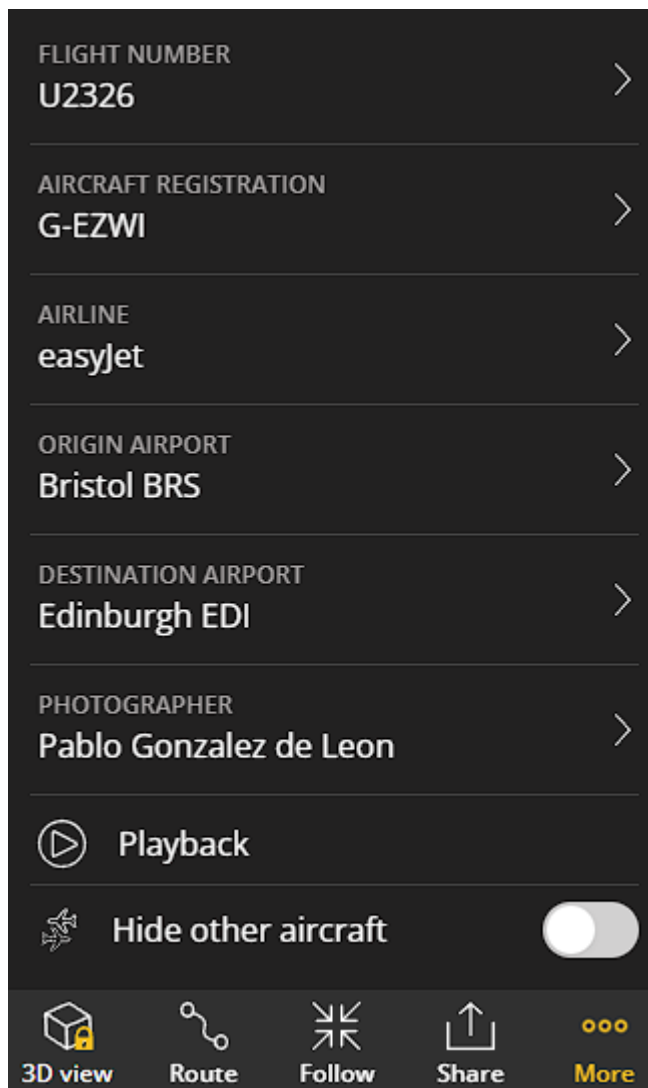
- Call sign, Flight number, Aircraft IATA/ICAO Code, and who its operated by.
- A few photographs of the exact plane you are tracking.
- What airport it has come from, and what airport it is intended to land at – some aircraft redact some information, these will usually be government or military aircraft.
- Its Scheduled and Actual Departure and it also shows the Scheduled Time of Arrival and its Estimated Time of Arrival.
- It also shows a small plane icon that fills up a bar to indicate how far the plane is from the airport relative to its location and departure point. Here is a screenshot for example:



- Its aircraft type, and aircraft category.
- Barometric altitude, “Track” - What direction the aircraft is facing, and its ground speed.
- ICAO 24-Bit Address, and its Latitude and Longitude.
- Its route on the world map:



- You can also click “Follow” to lock onto the aircraft which will make the screen follow the aircraft.
- And there is a “More” tab for extra information, as shown below:



[1]

The things you need to pay for are:

- Adding the flight to bookmarks, Country of Registration, Manufacturer's Serial Number, and Aircraft age.
- Vertical speed, GPS Altitude.
- True airspeed, Indicated airspeed, MACH, Wind, Temperature, FIR/UIR, its SQUAWK Code, and a 3D View of the plane.

I was easily able to escape the plane menu by clicking the “X” on the top right corner of the popup menu, as shown below:

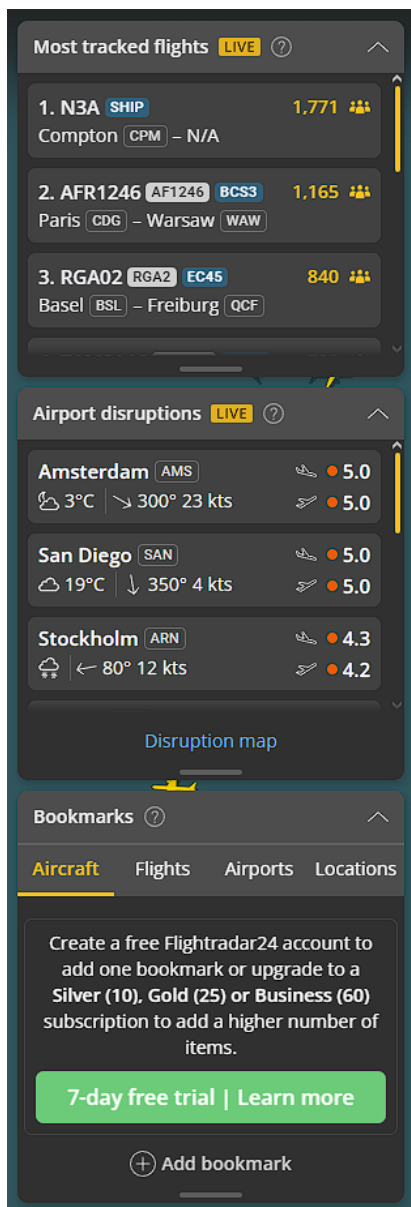


[1]

An alternative way to exit this menu is to find and click/tap an empty space on the world map and it will bring you back to the main menu.

Going back to the main user interface you will also find menus with the 1st showing a Live top 10 “Most Tracked Flights worldwide” - clicking on a plane means you are “tracking” the plane, so a plane with 1,000 tracking points means 1,000 people are actively watching the exact same flight you are tracking.

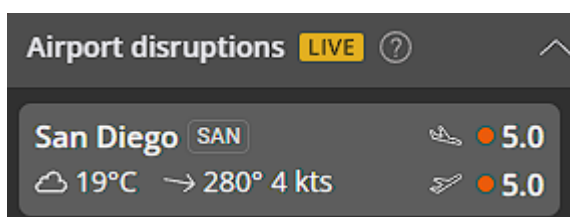
Here are the menus it shows on the left of the screen for a reminder:



[1]

The 2nd menu on the left shows you Live Airport disruptions worldwide, it shows you the Airport, the Temperature at the Airport, the Wind Speed and Direction, and an evaluation of the Airports “Disruption Index” from 0 – 5, 0 being Good Traffic Flow, and 5 being Heavily Disrupted.

At first, I was a little confused what it actually meant as it only shows a number, a plane and a coloured dot, it also lacks further information, this is how it looks:



[1]

However, to find a proper explanation I decided to click on the “San Diego” Airport Disruption, I scrolled down until I found the Plane, coloured Symbol and the Number, and it has an information explanation which clearly explains what it means, as we can see here:

The screenshot shows the Flightradar24 interface for San Diego International Airport (SAN / KSAN). The top section displays the airport name, elevation (16 ft), and time (1:48 PM PST). Below this is a satellite view of the airport and a map of the surrounding area. The weather section shows an overcast sky with a temperature of 19°C. The main section features a disruption index of 4.2, based on 1,683 user ratings. A detailed disruption index explanation is provided on the right, ranging from 0-1.9 (Good traffic flow) to 3.5-5 (Major problems). The bottom section shows current disruptions, including average delays and disruption indices for arrivals and departures. A 'Latest events' section at the bottom lists landings, such as a British Airways flight from London (LHR) on a BAC A320.

San Diego International Airport ✪ ✕

SAN / KSAN Elev. 16 ft

1:48 PM PST (UTC -08:00) | Jan 1 flightradar24

Overcast | 19°C | 280° 4

DISRUPTION INDEX

The value between 0 and 5 is a balanced value that includes number of delayed flights, average delay and number of canceled flights. The higher number, the higher number of cancelations and/or delays.

- 0 - 1.9 Good traffic flow
- 2.0 - 3.4 Minor problems with some delays or few cancellations.
- 3.5 - 5 Major problems with long delays and several canceled flights.

4.2 ★★★★★

1,683 myFlightradar24 users have rated Diego International Airport

[Read reviews >](#)

CURRENT DISRUPTIONS LIVE

ARRIVALS

AVERAGE DELAY ✈ DISRUPTION INDEX

95 min 5.0 ?

[Arrival board >](#)

DEPARTURES

AVERAGE DELAY ✈ DISRUPTION INDEX

110 min 5.0 ?

[Departure board >](#)

Latest events

LANDINGS

08:35 AM BRITISH AIRWAYS London LHR BAC A320

[1]

There are a few other useful options on the website/app, these being various trackers for weather, volcanic activity, storms, clouds, and various other trackers as seen below:

CURRENT WEATHER



Current weather for 3,000 airports in the world overlaid on map.

 [Unlock](#)

VOLCANIC ERUPTION



Boundaries of volcanic eruptions and ash clouds impacting aviation.

Off

CLOUD



Global IR Satellite provides worldwide cloud cover displayed on the map, refreshed every 60 minutes.

 [Unlock](#)

TOTAL PRECIPITATION



Total precipitation shows areas of active precipitation on the map, refreshed 12 times a day.

 [Unlock](#)

INTENSE PRECIPITATION

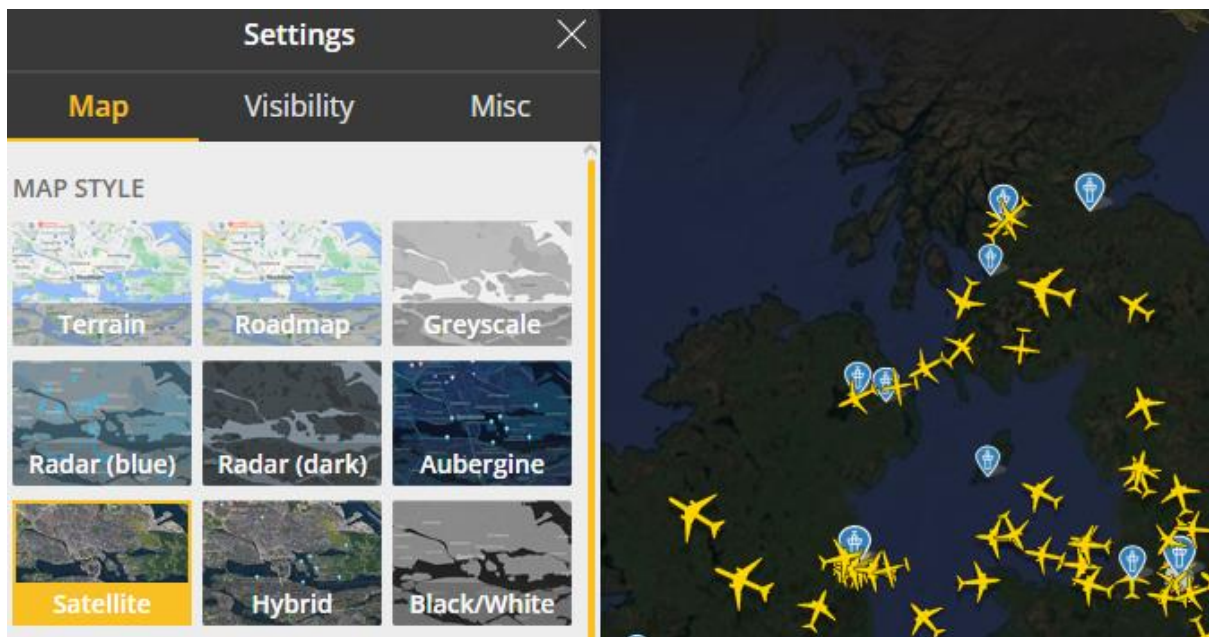


Global Derived Radar displays areas of intense precipitation using global satellite...

 [Unlock](#) [More](#)

[1]

You can also change the map type to various other styles which some people may find useful:



[1]

There are a few other options for things on the website, but I will stop here as this will get repetitive and will continue for a while.

User Experience Design Principles

Intuitive Interface: I find that the User Interface is highly intuitive. The menus are very easy to navigate, and it also reduces the cognitive load allowing the users to navigate the user interface with minimal effort and frustration.

It uses clean minimalistic aesthetics such as black text on white backgrounds, and yellow planes easily seen over the darkened white/blue world map (using the default terrain map style) - planes also cast a shadow over the map to highlight their positions clearly.

It also has responsive and adaptive menu layouts. For example, the menus take up minimal space on the left and right sides of the screen. There is also an option to minimise the menus so that you have a greater view of the map.

Everything is arranged logically, meaning you can find what you are looking for by clicking on menus you would expect to find.

The major con with this website is its live information and data rich interface which is incredibly overwhelming at first glance – but this is to be expected, and there really isn't much they can do about that regardless, but you can filter planes later to make the screen less information heavy.

User Interface Hierarchy: The hierarchy of Flightradar24 isn't the usual hierarchy you would find when looking at user interfaces. Flightradar24 uses a unique spatial/map first user interface pattern [2], it doesn't have a conventional "main menu". The website displays itself as a world map first, valuing user freedom over structured pre-defined primary menus.

I would argue that going with a traditional main menu for this website would be counterproductive and may lead to less users engaging with the website as a whole due to its initial complexity upon first glance.

The website relies on secondary menus that can be expanded over the world map, giving users freedom over what they want to interact with.

Usability [3]: The Flightradar24 website has outstanding usability due to its very quick learnability as it is very easy to understand what the user is looking at on the website. I found it very easy to find specific types of information as it is placed in locations in the menu where the user would expect to find the information.

The website is highly satisfactory to use due to the real time flight visualisation which provides high engagement for users interested in aviation. The interface delivers a high satisfactory experience for its target audience being aviation enthusiasts. User feedback (which I will expand on) shows a great deal of positive reviews with the majority expressing high satisfaction with its real time flight information.

However, there is a lack of easy access to user feedback and reviews on the website itself. User ratings and reviews are scattered across external platforms such as off-site websites or app/play stores making it difficult to gauge user satisfaction from other like-minded users. If there were infact reviews on the website, it isn't in a good place as I couldn't find it. This being another aspect of "hidden downsides" such as adverts, and subscription complaints, whilst the app/play store shows higher average reviews from casual users. That being said, the reviews on the play store and app store are outstanding.

Play store being 4.6 stars out of 5.0:

Apps & games ▾ Device ▾

Flightradar24 Flight Tracker

Flightradar24 AB

Track airplanes and follow flights with our real-time flight tracker



4.6★
631K reviews

100M+
Downloads

3
PEGI 3 ⓘ

Install on more devices

[4]

And the App store being a 4.8 star out of 5.0 with about 300k less reviews than the Play store:



[5]

Feedback and System Status: The website does really well with giving the user feedback with what's going on in the website. Since the website operates on live up to date information, everything gets constantly updated – these things being weather, wind direction for each airport, and the plane locations on the map which move.

“The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.” - Jakob Nielsen Usability Heuristics, Heuristic #1 [6]

The website clearly follows the above design principle as outlined by *Jakob Nielsen*. There wasn't a moment where I was confused with what was presented on the website, other than the red/orange dot resembling the Disruption Index previously mentioned. Everything has clear explanations about what the actions and consequences of the actions are.

Consistency and Standards: This principle is key in ensuring the interface uses consistent terminology, visual styles, and interaction patterns throughout the website.

“Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform and industry conventions.” - Jakob Nielsen Usability Heuristics, Heuristic #4 [6]

This website clearly sticks to this principle as it uses the well-known and familiar Google Maps – to name a few, Scroll In and Out to Zoom, Right or Left click to Pan the map, or to go into the settings to change map type to various other map types. Changing these would destroy user mental models of using familiar websites, whilst keeping it builds on users existing mental models.

The Flightradar24 website also has mobile app equivalents, I will briefly mention these as the apps are largely the same - functionality wise.

On the Play Store app of Flightradar24 the user interface is the almost the same as the PC Website, the only major difference is screen size and map interactions like pinching to zoom in or out, tapping to select things, and holding to pan the map.

However, the app includes 1 platform specific enhancement, this being Augmented Reality view - Point your phone towards the sky to overlay nearby flights with aircraft photos and details.

Recommendations for improvement

I have 3 main recommendations for improving the website:

1. Reduce the intrusiveness of advertisements. The adverts take up a significant portion of the screen and often becomes distracting. This is the biggest complaint from users from a variety of sources, these being Reddit, Trustpilot, Google Play Store, and the Apple App Store. Suggestion, reduce the aggressiveness of the

monetisation methods, or re-evaluate and change the premium subscription prices.

2. Implement a review system on the website itself. The user shouldn't have to go off website to see the user satisfaction and complaints. Suggestion, add a rating out of 5 Stars in one of the four corners of the website screen. To see reviews, simply tap on the rating and it would expand a review menu.
3. For the "Disruption Index" add a small explanation of what it means when hovering over the coloured dot. Or add an "i" icon by the side for information expansion.

Conclusion

Overall, the Flightradar24 website does a great job at following the core User Experience Design principles. User experience design is essential in keeping the user interacting with the website. With greater user experience design, the user will become more comfortable with using the website. The longer the user interacts with the website, the higher the chances they will submit to the premium subscription monetisation the website presents.

Bibliography in IEEE Format:

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[6] Nielsen, J. (2024a) *10 usability heuristics for user interface design*, Nielsen Norman Group. Available at: <https://www.nngroup.com/articles/ten-usability-heuristics/> (Accessed: 11 January 2026).