Team 1

Proposal for Enhancing the DC Metro Train Status Information Service

We would like to reinvent the information service of DC Metro Train Status, which is available through the DC Metro website and the transit mobile app “DC Metro and Bus.”

Why the Service Improvements Are Needed

Our justification for service improvements stems from two major reasons that highlight the app’s inadequacy.

1. User Complaints: Frequent user reviews in app stores mention inaccurate real-time updates, missed buses, and frustration with the subscription model.

2. Impact on Commuters: Inaccurate data leaves commuters stranded or causes delays in planning. Considering DC’s reliance on tourism, poor public transit service can affect both the local economy and daily commuters.

This information service is needed since commuters depend on reliable and accurate train and bus service to plan their days, as do the millions of tourists who come to the DC region every year. Allowing potential riders to have high-quality information might sway them to take public transit instead of relying on personal modes of transportation, helping to alleviate road congestion and pollution.

Key Issues and Features

The current app has a good base, but there are some key features that we would like to add/improve on:

1. We would like to address the price of the app. The app should be completely free instead of having a subscription option like it does now. Charging for features reduces the app’s accessibility and deters some users, especially tourists and casual commuters.

2. We would like to add an alert feature explaining why the train is running late. This feature would explain to users that the train is running late because of technical issues, inclement weather, operational bottlenecks, and other reasons. By informing users in real time, this information could significantly reduce user frustration.

3. We would like to improve how helpline requests are handled. We will add help hotline information and enable calls when the information is pressed. This will improve the current system, where users must either write down or remember information.

4. We would like to address the need for reliable data. We see that inaccurate data confuses commuters. Because of inaccurate information, the app has an issue where the bus shows on the map for a few minutes and then disappears.

Reason for poor existing services

We identified three reasons for poor existing services.

1. Data Inaccuracy: The system's backend infrastructure may not be robust enough to handle real-time data collection and processing accurately. Lag in GPS data or failure to sync with the actual locations of buses and trains could result in inaccuracies.

2. Lack of Transparency on Delays: Users are not informed about the reasons for delays or changes in schedules. The absence of detailed alerts leaves them feeling uncertain and unable to plan alternate routes.

3. Inefficient User Interface (UI): While the app provides basic functionality, it lacks user-friendly features like instant hotline dialing or clear, easily accessible alerts about delays and reasons for service disruptions.

Proposed Solution

The information service will gather real-time data from buses and trains, including their location, direction, route, and passenger capacity. This data will be processed in a centralized system and shared with station displays within the DC metro system on embedded technology on station platforms and vehicles, as well as on mobile devices carried by pedestrians and riders of the WMATA rail network through the mobile app. The app will show accurate arrival times, reasons for delays, and suggest the most efficient routes based on real-time conditions like traffic or service disruptions. It will include features like push notifications for service alerts and a one-tap hotline for quick access to customer support.

One of the features will allow users to create custom alerts based on delays or obstructions in real-time. If multiple users see the same obstruction/delay, they can rate it, and once it gets enough attention, it will be forwarded to the metro station for official verification. This is similar to Waze, which is how users can set alerts for other drivers.

This encourages user collaboration while helping Metro staff respond faster to verified issues.

The system will scale as needed, incorporating future technologies such as artificial intelligence for more accurate predictions and crowdsourced data for improved incident reporting. Overall, this solution will provide more reliable and user-friendly transit information to improve commuter satisfaction while staying within budget constraints.

Resource Considerations

1. Budget Impact: These improvements can be implemented cost-effectively by using cloud infrastructure and modern APIs, streamlining data collection and alerts without major system overhauls.

2. Cost-Effective Solutions: WMATA can partner with transportation data analytics companies to manage alerts and services using efficient algorithms, reducing the need for expensive hardware upgrades.

3. Revenue Options: An ad-supported model and integrating crowd-sourced data from commuters can help offset development costs and manage real-time data updates efficiently.

Conclusion

The proposed enhancements to the DC Metro Train Status information service will improve the accuracy, accessibility, and user experience of the system. By implementing these changes, WMATA can provide commuters and tourists with reliable, real-time transit information, ultimately improving public transportation usage in the DC region while staying within budget constraints.

Team Work Plan:

Work to be completed	**Person Responsible**	**Date Due**	**Quality Control**
Proposal	All Team members	10/4	Alanna
Create Github	John	12/7	Omer

Research Information Environment	Ishan, Omer	10/16	Aniket
Outline features and functions	John, Paul	11/17	Omer
Diagrams	Fahim, Ishan, John	11/28	Omer
Final Presentation	Ishan, Alanna	12/2	Paul
Review Project	Paul, Alanna	12/5	Fahim
Edit Final Video	Aniket	12/9	Ishan