Team Name: Transilators

Bus Information Kiosk

What problems are we trying to solve?

Based on User and Expert Interviews and Observations, riders are bombarded with inaccurate, static information, which feeds scheduling uncertainty. 3rd-Party information sources are often out-of-date causing anxiety and adding to the inability to make a transit decision. This solution helps riders feel confident in the trip information provided by Pittsburgh Regional Transit (PRT) and eliminate any fear of negative consequences on their lives due to riding the bus.

What is this big idea?

A smart interactive kiosk that provides true time information about the bus status and allows users to check schedules for any other bus routes they require. The kiosk reduces the fear of missing buses by seamlessly providing route information, including arrival time and allows users to pre-pay their fare.

How does this concept address the product requirements and problem statement?

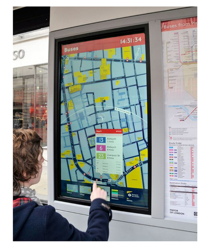
This concept's underlying approach is to **help riders gain access to more accurate information while riding the bus in Pittsburgh.** Many riders are often stranded at bus stops or forced to quickly adapt to changing situations, exasperated by inaccurate or ineffective methods of obtaining route information. An interactive and intuitive kiosk, sourced by scheduling data from PRT, will provide consistent and up-to-date information allowing riders to trust their trip decisions and reach their destination increasing their independence.

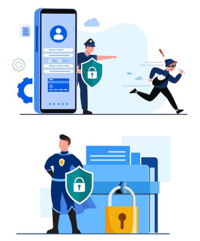
Reliability | Point in Time → A solution to make the service as reliable as possible to reduce the fear of riders. → A kiosk that consistently provides true time data sourced by PRT, allowing riders to track their status

Confidence → A solution to provide information as accurate as possible to enable bus riders to schedule trips confidently. → A self service, intuitive kiosk where riders can research routes and pay their fare without seeking assistance

What technology enablers does this concept require?

- Scheduling data from PRT to feed the kiosk
- Regulatory laws governing data privacy and compliance
- Kiosk Hardware and Software for UX, including payment
- Cybersecurity to safeguard rider data





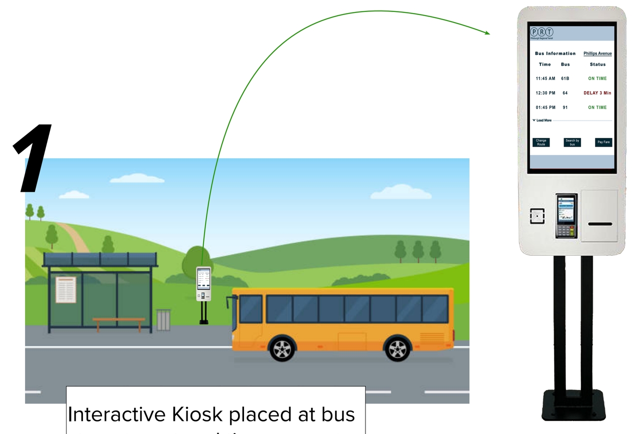
Who are the key stakeholders?

- Bus Riders
- Bus Drivers
- Pittsburgh Regional Transit (PRT)
- PRT Schedulers
- Software and Backend Developers
- Kiosk Vendors
- Grassroots Advocacy Groups

Ashish Mangal / Mei Tamaki / Shirui Liang / Dongwen Xu / Luke Shen / Saisri Akondi / Kaila Richardson

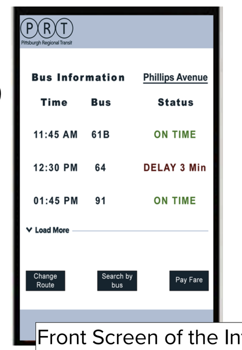
STORY BOARDING

1



Interactive Kiosk placed at bus stops to get real time accurate bus status information

2



Front Screen of the Interactive Kiosk, with information about bus status, route, and fare payment.

3

Riders can access information anytime at the bus stop to get reliable information readily.

4

Users can pay for tickets at kiosk along with accessing information.

5

Kiosk announces the arrival of buses for the riders to be aware.

Team Name: Transilators

AR Your Guide

What problems are we trying to solve?

According to the expert interview and user interviews, some people avoid riding a bus in Pittsburgh because of fears, and the fear of not knowing which one is the right bus stop or where is the bus stop, how to board the right bus, what to do for riding a bus and looking stupid is one of them. This solution helps users to be more informed, and feel confident and joyful for taking the bus.

What is this big idea?

Through 3D panorama in users' phones, AR provides users with guidance on finding bus stop, waiting, boarding, and riding a bus. This function can be integrated into existing transit Apps such as Google Map and Transit.

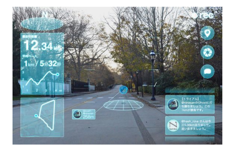
How does this concept address the product requirements and problem statement?

This concept's underlying approach is to **help riders overcome fear of riding a bus in Pittsburgh.** The problem behind many passengers' desire for the reliability, confidence and independence is the fear of not being able to ride a bus without asking for help. Providing AR guidance on riders' phones allows riders to obtain a smooth transportation experience with less stress and confusion.

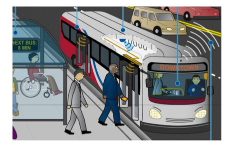
Reliability | Point in Time | Confidence → A solution to provide bus riders with a sense of assurance and reliability to overcome the fear of riding buses. → Providing AR guidance allows riders to scan the real scenes and see guidance of how to get to the bus stop and obtain real-time bus info on their phones so as to have a smoother and confident experience

What technology enablers does this concept require?

AR technology



Sensors and cameras to detect the buses and locations



A system that works with sensors and cameras on the bus stop to link delay information in real time

Who are the key stakeholders?

- bus riders
- Authority
- developer
- Government (The city of Pittsburgh)
- civil engineer/city planner
- bus drivers
- Pittsburghers for Public Transit
- constructors

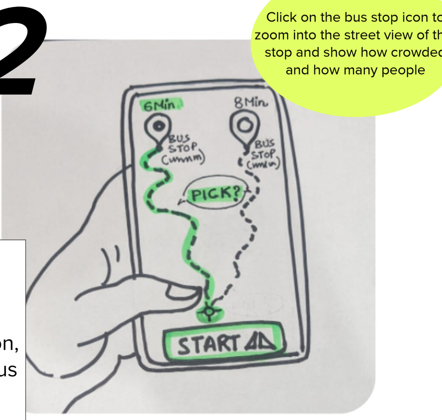
Ashish Mangal / Mei Tamaki / Shirui Liang / Dongwen Xu / Luke Shen / Saisri Akondi / Kaila Richardson

STORY BOARDING

1

Open the transit app and enter the destination

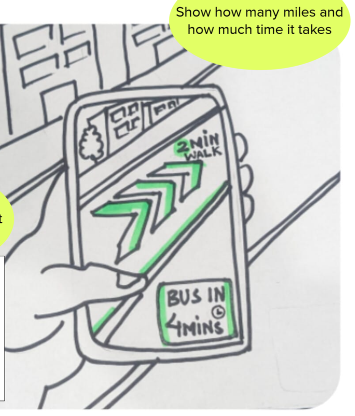
2



Click on the bus stop icon to zoom into the street view of that stop and show how crowded and how many people

The best routes closest to you recommended, showing your location, the location of the bus and the bus stop in real time

3

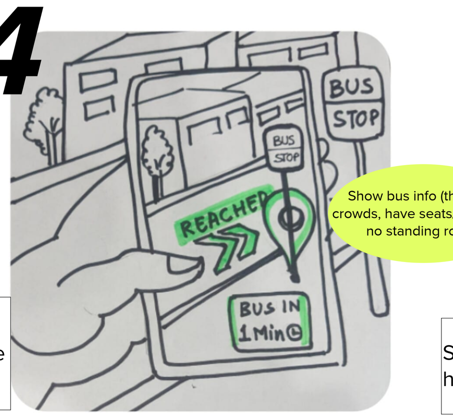


Show how many miles and how much time it takes

Virtual path arrows overlaid on real street scenes

Show a map, choose a route that you want to take and open the AR view

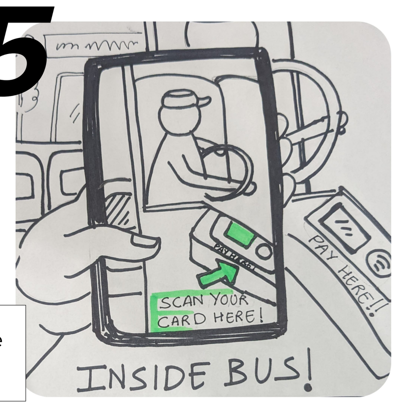
4



Show bus info (the time, crowds, have seats/no seats/ no standing room)

See the 3D panorama route guidance

5



Show guidance how to board

Team Name: Transilators

Exclusive Bus Lanes

What problems are we trying to solve?

Based on our research, many bus riders desire high frequency and short waiting times.
The problem with this request is that the buses do not arrive on time and the delays cannot be tracked in the Bus Info app, resulting in longer wait times.

What is this big idea?

This concept includes the installation of bus-only lanes and the placing of sensors in the lanes.
With the development of exclusive bus lanes, **buses in Pittsburgh will not be delayed and all bus riders will be able to board the buses on time.**
These lanes are paved in a different color than regular streets so that both bus drivers and other drivers can easily recognize them.
The lanes are also equipped with sensors in case of delays. This will allow bus riders to get real-time information on the bus stop screen and online.

How does this concept address the product requirements and problem statement?

This concept's underlying approach is to **create a system that does not cause bus delays.**

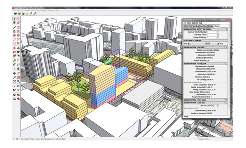
The delay of bus and no trackable information will impact users confidence in scheduling a bus transit. An **accurate and accessible** information provided by this concept can reduce the level of fear when people are waiting for the bus. This solution solves that problem and delivers a more comfortable bus trip for bus riders.

Reliability | Point in Time → A solution to make the service as reliable as possible to reduce the fear of riders. → A bus only lane to help buses avoid traffic jam and thus enable them to arrive on stops on schedule.

Confidence → A solution to provide information as accurate as possible to enable bus riders to schedule trips confidently. → A curbside sensor to locate and record buses' location will increase the level of accuracy compared to only using GPS. Users may access the information via mobile applications.

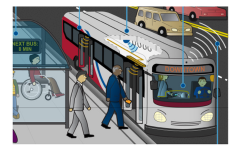
What technology enablers does this concept require?

Urban planners and simulation software to create bus-only lanes in Pittsburgh



Machines to build roads

Sensors to detect the bus numbers and locations



A system that works with sensors on the lanes to link delay information in real time

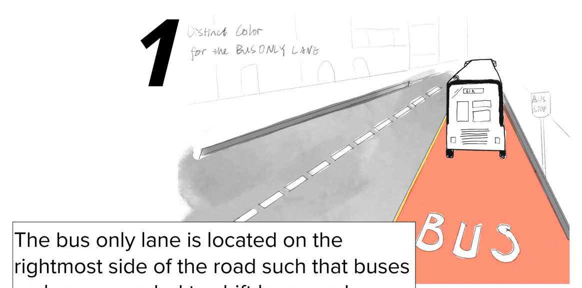
Who are the key stakeholders?

- Bus riders
- Government (The city of Pittsburgh)
- Civil engineer/ City planner
- Pittsburghers for Public Transit
- Developer
- Authority
- Bus drivers
- Constructors
- Other drivers

Ashish Mangal / Mei Tamaki / Shirui Liang / Dongwen Xu / Luke Shen / Saisri Akondi / Kaila Richardson

STORY BOARDING

1

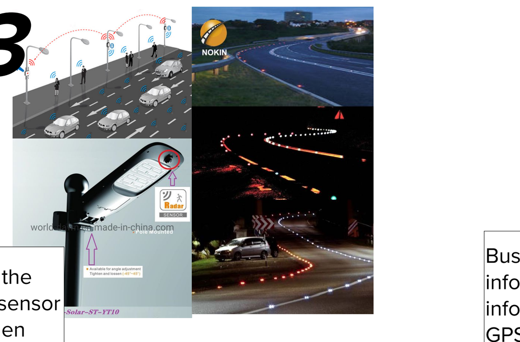


The bus only lane is located on the rightmost side of the road such that buses no longer needed to shift lanes and potentially get jammed in the traffic.

2

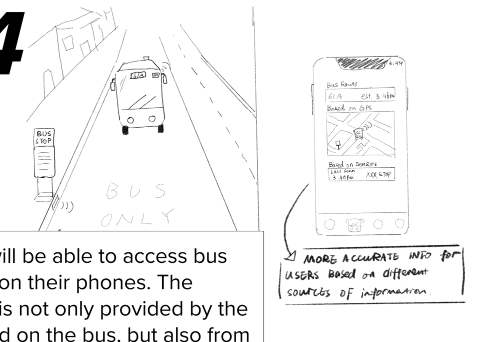
The color of the lane should be distinct from the color of other lanes such that other drivers may easily tell they are designated for buses.

3



There will be sensors installed on the curb sides of each bus stops, the sensor will detect and record the time when bus arrived at the stop.

4



Bus riders will be able to access bus information on their phones. The information is not only provided by the GPS installed on the bus, but also from the bus lane sensors.