LumiNY

Concept Development Case

Stakeholders/Ecosystem

Riders: Includes locals (in particular night shift workers, night owls), tourists, etc.

- people who work at night who have to commute to and from work at off-peak times of the day
- People who enjoy going out to clubs, bars, and restaurants that close after 10 pm and need a safe, inexpensive means of travel home
- Tourists using the system to explore the city

NYC/MTA management: As the ones in charge of managing the system, a smoothly running subway system is their first priority. People feeling safer will overall give them more income and a better reputation amongst the people.

MTA workers: MTA workers can also be riders, but they are unique in that they work in the stations. The state of the station affects their safety the most.

Customer/Stakeholder Insights

From interviews we found:

- People usually feel unsafe on the subway due to worries about violent or dangerous encounters
  - But the current rate of 1.2 violent crimes for every million subway rides roughly equals the chances of getting injured in a crash during a two-mile drive (not as frequent as people feel)
- Travelers are more uncomfortable using the subway at night due to isolation
- Travelers also expressed discomfort due to ambiance/appearance of subway platforms and cars
  - Tourists often find the New York Subway environment less pleasant than other cities, such as Moscow, Amsterdam, and Berlin (Takenaga, 2019).
- Travelers found comfort in riding with people (others generally, or people of authority, such as police officers and MTA staff).

Value Provided

For Commuters/Travelers:

- Travelers feel safer during off peak times, reducing their overall stress and helping them feel safer
- People will feel more comfortable taking the subway at night, and will see it as a more viable transportation option – allowing them to save money (in comparison to rideshares, taxis, etc.)

NYC/MTA management:

- More people will choose to ride the subway at night, increasing ridership and fare revenue
- Also will improve people's perception of the MTA

Ideal User Experience

It's 12 am at night, and a young woman has just finished work. As usual, she walks to the subway station to start her commute home.

Arriving at the station, the overhead lighting casts a warm feeling throughout the subway, and allows her to feel more comfortable and relaxed. She follows the directional lights to the center of the platform, where a few other people are standing. Having others around makes the station feel less eerie.

When the car arrives, she boards the car with the conductor and finds 7 others on board, all minding their own business – enough to make her feel not alone. She rides to her stop, gets off and quickly arrives back home safely.

Product Experience

The product delivers an experience in two ways:

1. Muted green lighting (obvious enough to be seen, but not aggressive enough to distract) will be visible in the floor. These lights will guide passengers to specifically designated areas in the train's cars – these specifically designated areas will be indicated by a greater concentration of lights, will additional lights on the pillars. These designated areas will (for people who want to) act as a place to find strength and safety in numbers.
2. Warmer, more ambient lightning will be apparent throughout the station. The station itself will be brighter and more well-lit, allowing riders to feel more comfortable while walking through and waiting at the platform

Competition

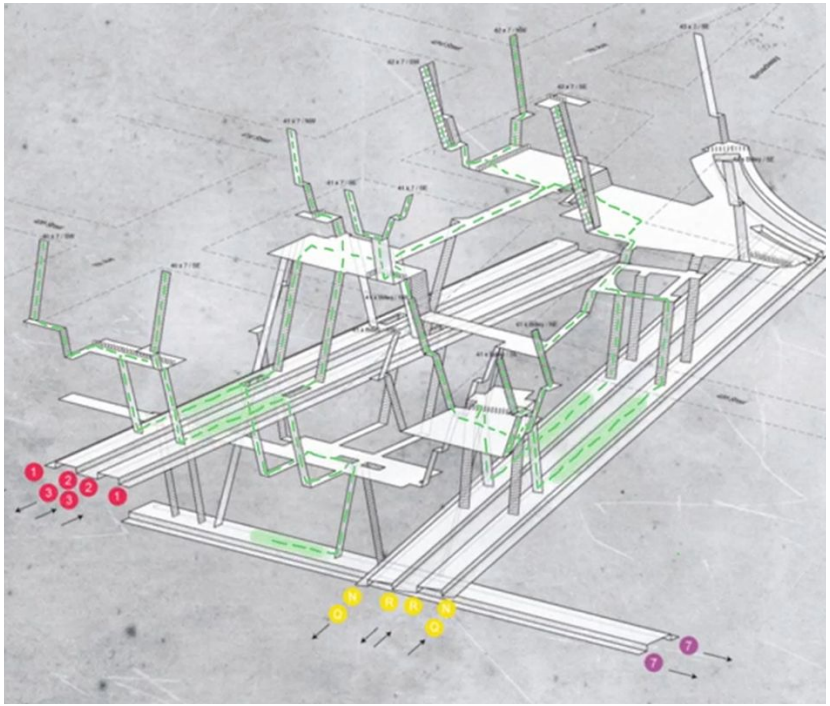
	Accessible in the subway station?	Accessible in the subway car?	Removes interaction with strangers	Provides the feeling of local, immediate assistance	Helps people feel safer	Comments
Noonlight	√	✗	✔	✗	✔	Alerts loved ones/police, but doesn't provide immediate help if you're in danger
App Elles	√	✗	✔	✗	✔	
Flare	✔	✗	✔	✗	✔	
LumiNY	✔	✔	✔	✔	✔	Aims to preempt danger by bringing people together
zebra stripe	✔	✗	✔	✗	✗	Most people don't know this exists, though it's in every station

Pitch

Over 60% of New Yorkers feel unsafe while riding the subway late at night, especially when riding alone. However, the actual chance of getting injured while taking the subway is less than 1% for every million subway rides – how can we get the experience to match with the numbers?

LumiNY is a new lighting system for New York subway stations that brings people together to help them **feel** safer. LumiNY activates 10pm-6am, and is a two part system: increased ambient lighting in the station helps people to feel more comfortable, and directive lights encourage riders to congregate in certain areas on the platform, reducing isolation. With LumiNY, the 30% of NYC who need to take the subway at night will have a safer, more positive experience.

Prototype



How does it work?

- The light system is automated to turn on in stations during off-peak hours (approximately 10pm to 6am).
- The system functions in two parts:
  - The floor tiles and pillar lights (by human behavior) will guide riders to the same location. This will allow them to feel safer through numbers, while not requiring direct interaction.
  - The ambient lighting will make use of colour temperature lighting. This lighting has been proven by science to relax the body and help passengers feel less stressed(Yang, 2022).
    - “The feeling of safety, which is often attributed to fear, may not be related to actual descriptive data of danger but passengers psychological state of mind when riding the subway due to the environment” (Zraick, 2022).
    - Rather than focus on the actual danger, which is far less prevalent, we focus on subway riders’ psychological impressions – by implementing different lighting, riders will have a different emotional outlook on the station and their experience

Technology Design Brief

- Create an overhead lighting system that works with existing platform lighting to create a warm, inviting environment.
  - Determine the brightness and color that achieves the desired result
  - Improve the existing fixtures with new bulbs that uses colour temperature lighting and filters
  - Install lights in paths from the station entrances to the platform
    - Use these to direct people to the conductor's car on each platform from each entrance
- Install green indicator lights throughout the station
  - Floor lights should guide riders from entrance to platform
  - A higher concentration of floor lights and additional lights on the pillars should mark the central cars
    - more visible version of the zebra stripe
    - the floor lights should durable so people can walk on them
    - lights on the pillars should be recessed to avoid tampering
- Generally, the wiring should be hidden but still accessible for maintenance. The lights should easy to clean, and not easily breakable (not glass)
- An additional challenge is to make sure that both forms of lighting don't cast an unflattering light on people walking/waiting in the station – will create aversion to using the system

Possible Technological Improvements

- Have directional lights that only turn on when there are people in the station to save energy
- Implement additional indicator lights to show empty cars
- Research into different lighting patterns that are more or less effective
- Active lighting adaptation per station, continuous testing hue and brightness conditions
  - Allows us to see and adjust to what encourages group boarding in different environments/stations
- Lighting that adjusts based on how crowded the platform and cars are, more grouping power when there are less people
- Reverse directional lighting for a safer feeling while exiting the station as well

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