

Project 2

Existing problems in subway stations

The idea of this project came from some unreasonable phenomenons which were gotten from observations and experiences. Some unclear signals and order problems impact the utilization of the carriage space and the operation efficiency of metro deeply.



BACKGROUND

HISTORY OF CHENGDU TUBE

History

Construction of the Chengdu Metro began in 2005. The first line, line 1, opened in 2010. Made Chengdu the tenth city in China with tube

Line

According to the official website of Chengdu Metro on December, 2020, Chengdu has opened a total of 12 lines. The total length of the lines is 518.96km

Scale

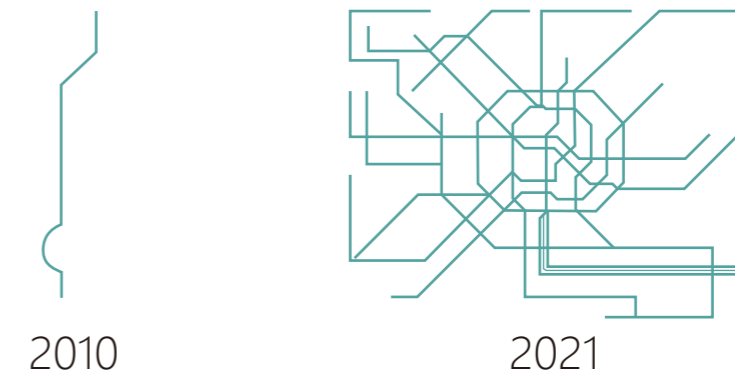
As of February 2021, of the 33 cities that have opened metros in mainland China, Chengdu ranked the 8th in operatin mileage

POPULATION TREND OF CHENGDU



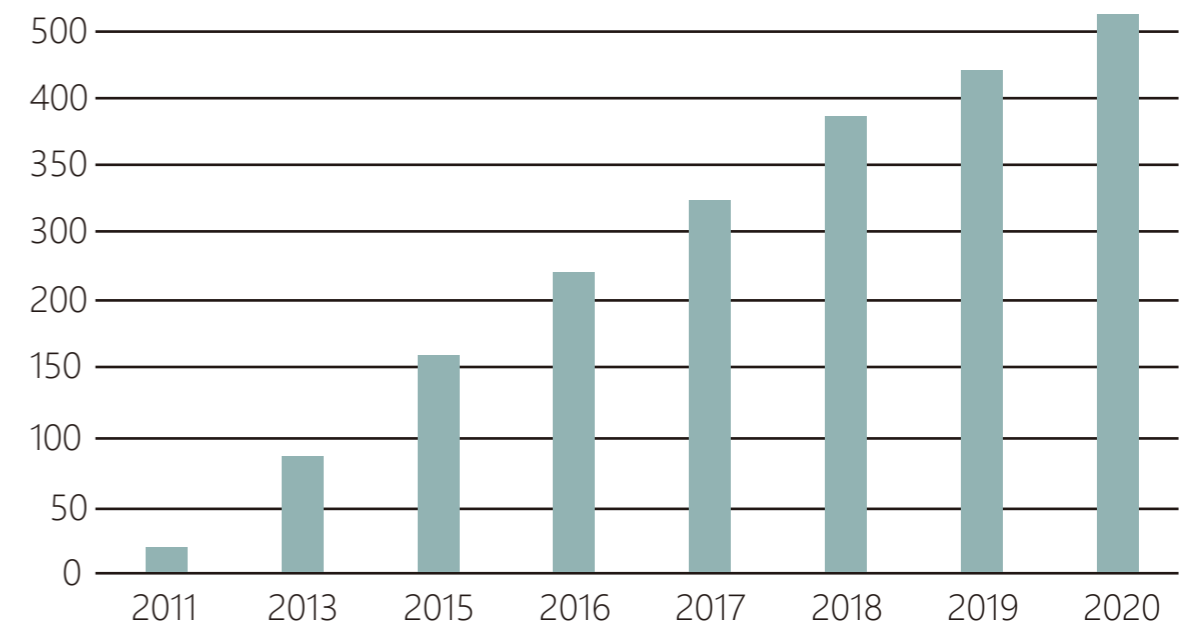
Chengdu's population is in a period of rapid growth, and the transportation system will definitely face greater pressure in the future. High-quality and efficient public transportation system is an urgent need

INCREASE OF LINES



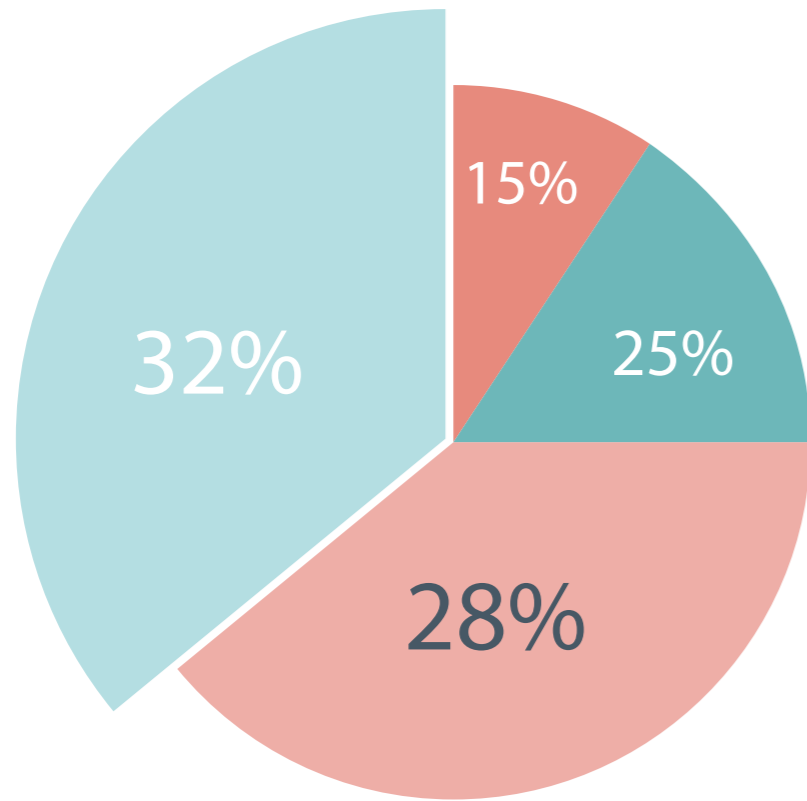
The Chengdu Metro has developed rapidly in eleven years, and has expanded to 12 lines since 2010 that cover most areas of Chengdu

INCREASE OF PASSENGERS

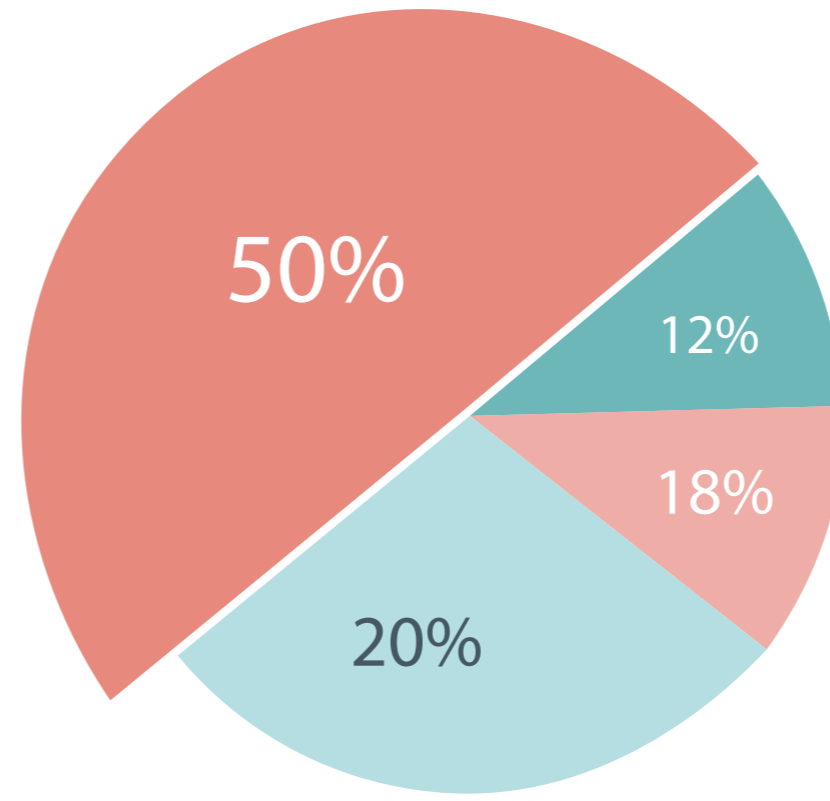


The average daily passenger flow of Chengdu Metro has never been less than 250,000 in 2011 and nearly 5 million per day in 2020

TRENDS IN THE USE OF TUBE IN TRANSPORTATION



2010



2021

- Subway
- Bus
- Car
- Bike



CONTRAST

CITY COMPARISON

	 Chengdu	 Shanghai	 London
Opening time	2010	1993	1863
Lenth (km)	222	670	402
Daily flow (10000 person-times per day)	400	1200	500
Feature	Fast development	Longest	earlist

The transportation system will face greater pressure in the future

Develop quickly, many mileages and lines have been conctructed in 11 years

Compare with London, Shanghai, large passenger flow with short completed mileage

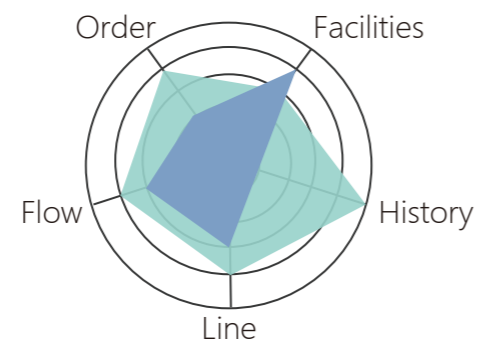
FEATURES OF CHENGDU,LONDON METRO



Chengdu



London



The Chengdu subway has better equipment, but compared with London, the subway lines are not rich enough. **Passengers fail to develop good habits and awareness, which leads to order problems.**

OBSERVATION

OBSERVE THE PROBLEMS IN TUBE



P1: Crowded at the gate



P2: Enter the subway
Not down and then up



P3: Stand in disorder on escalator



P4: Uneven distribution of queues

ANALYSIS

PROBLEMS

Jump in queue

First down and then up

Crowded at gate

Stand in disorder on escalator

Search for card in front of the barrier

In a hurry, low quality

Bad habits and awareness

Easy to get off
Bad habits and awareness

Bad habits and awareness

Low carriage utilization

Hard to get off

Lead to mess

impact people who are in a hurry



INTERVIEW

Interviewed passengers from different groups of people to understand their different pain points when taking the subway.



About

Name: Jewel

Occupation: Designer

Age: 26

Commuting time: About 30min

Pain points

- Many people do not obey first down and then up
- Hard to find the washrooms when the gate is full

Requirements

- Want more specific and clear guide
- Hope some passengers could care about others' feeling

“ SOME SIGNS IN METRO ARE CONFUSING ”



About

Name: Yang

Occupation: HR

Age: 28

Commuting time: About 60-70min

Pain points

- Do not know which exit is closest to destination
- The middle of the carriage has much empty space

Requirements

- Want more specific and clear guide
- Improve space utilization of the carriage

“ TOO MANY PEOPLE DO NOT OBEY THE RULES ”



“ SOME STATION’S ENVIRONMENT ARE COMPLICATED ”

About

Name: Ivy

Occupation: Marketing

Age: 31

Commuting time: About 30min

Pain points

- Easy to go to the wrong direction
- Do not know own position at transfer station

Requirements

- Want more specific and clear guide

Survey site



JOURNEY MAP

Stage

Walk into station

Line up at platform

Get on tube

In carriage



Doing

Go down stairs/escalator
Go through security
Go through barrier

Choose one platform to line up
Wait for the tube

Wait for others to get off first
Get on

Choose a place to stand/sit
Play mobile phone
get ready to get off

Thinking

It is too crowded
I need to hurry up

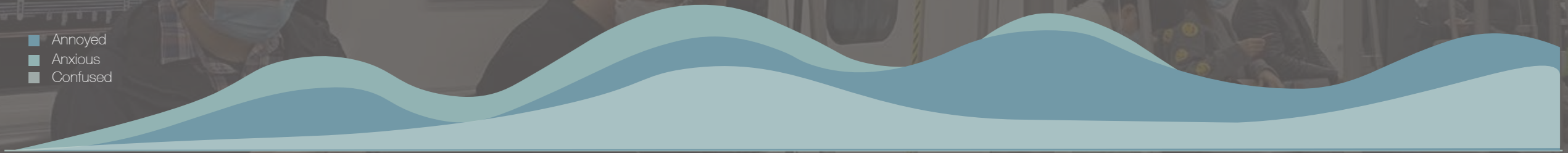
Which platform is easier to
get on tube
Dislike people who like jumping
in queue

Many people break
the rules which require
passengers to get on
after others get off

Too many people stand in
front of the door

Feeling

■ Annoyed
■ Anxious
■ Confused



Pain points

People do not line up
on escalator
Some passengers start
to find their card while
arriving the barrier

Many people jump in queue
Do not know which position
is better

Many people do not
obey the rules
Do not know the
close time

It is hard to find a place to
stand for quicker getting off

Chances

Use better sign to remind
people to obey the rules

Analyze passenger distribution
to offer better guide

Use better sign to
remind people to obey
the rules

Analyze passenger distribution
to offer the best position to stand

PERSONAS

Elthia Cai

“ I am a novice mother with an eight-month-old daughter. On weekends, I would push my daughter out to buy daily necessities by subway. But because the baby is too young, there are many unexpected situations such as hungry or changing diapers. This often makes me panic at the subway station. ”



MOTIVATIONS

Convenience

Facilities

DEMOGRAPHICS

Age: 28

Occupation: Teacher

Location: Chengdu

FRUSTRATIONS

- The sudden cry of a baby makes the passengers in the carriage feel noisy, and it also makes elthia feel embarrassed
- Shy to breastfeed in public

GOALS AND NEEDS

- There is a carriage for mothers and babies, and the temperature of the air conditioning in this carriage is more suitable
- Set up maternity rooms in subway stations

PERSONAS

Joven Jiang

“ Joven is an 11 year-old boy. In order to cultivate his independence, he takes the subway to school by himself every day. But he always missed the metro and being late for class. ”

DEMOGRAPHICS

Age: 11

Occupation: Student

Location: Chengdu


FRUSTRATIONS

- He is often late for class because of missed the subway, and he will be asked to stop in the corridor outside the classroom
- Feel so sad because he didn't hear the announcement of the broadcast

GOALS AND NEEDS

- Maybe there is a student carriage that can be reminded when getting off the bus or arriving at the station instead of just broadcasting

MOTIVATIONS

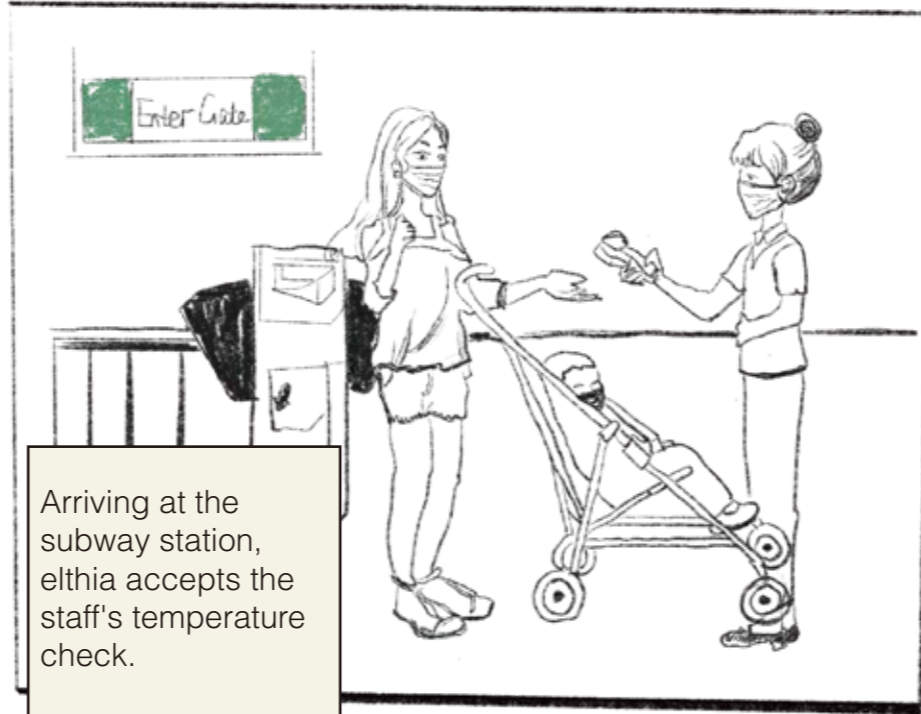
- Convenience 
- Facilities 
- Sense of experience 



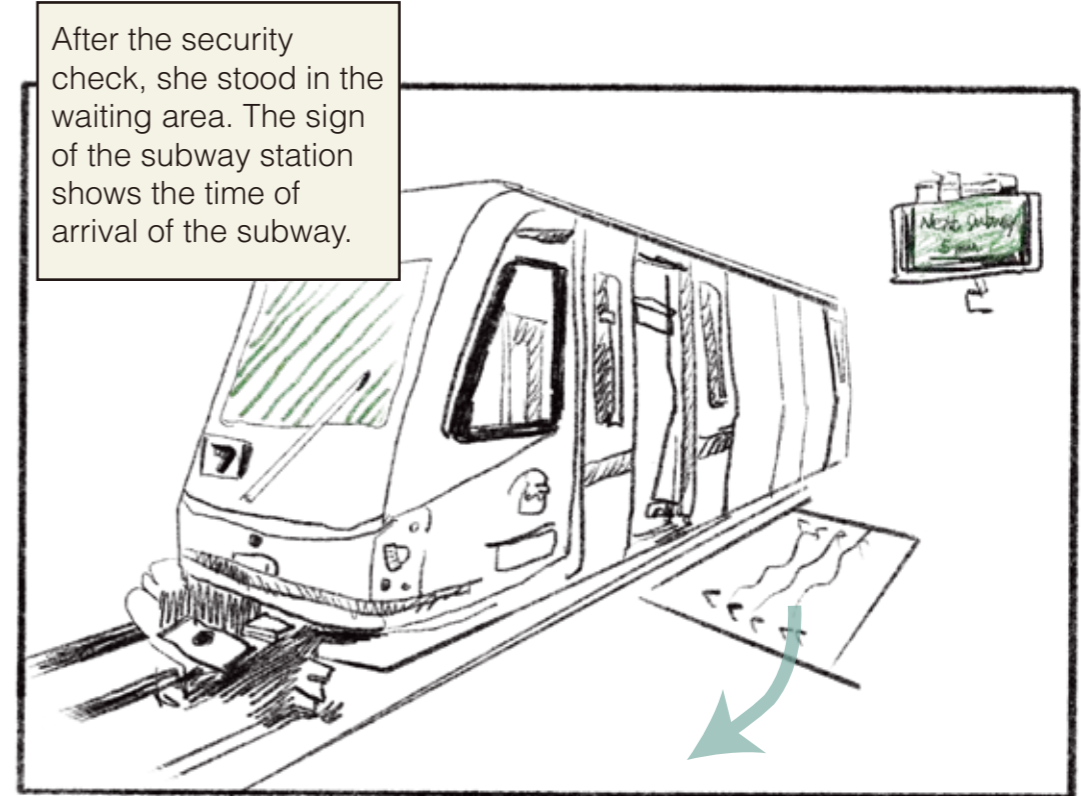
STORYBOARD



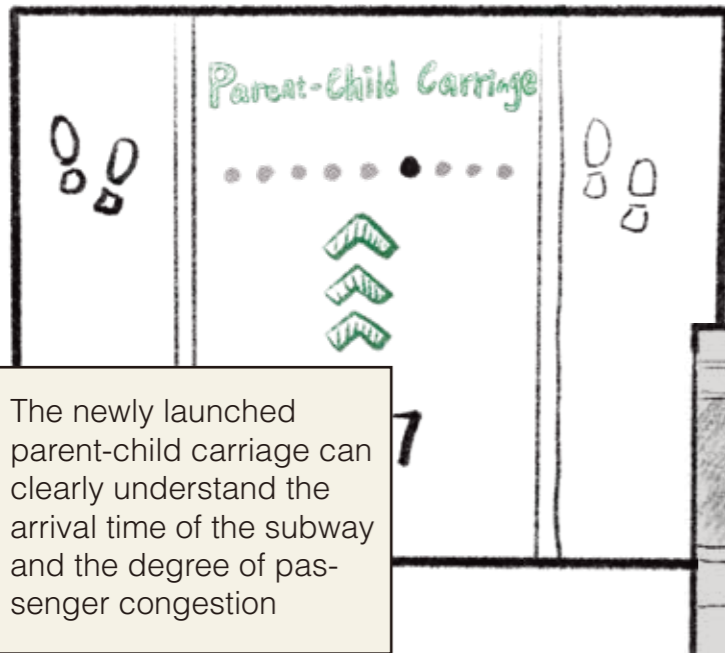
On the weekend, Elthia is going to take the subway to the mall for shopping with her kid.



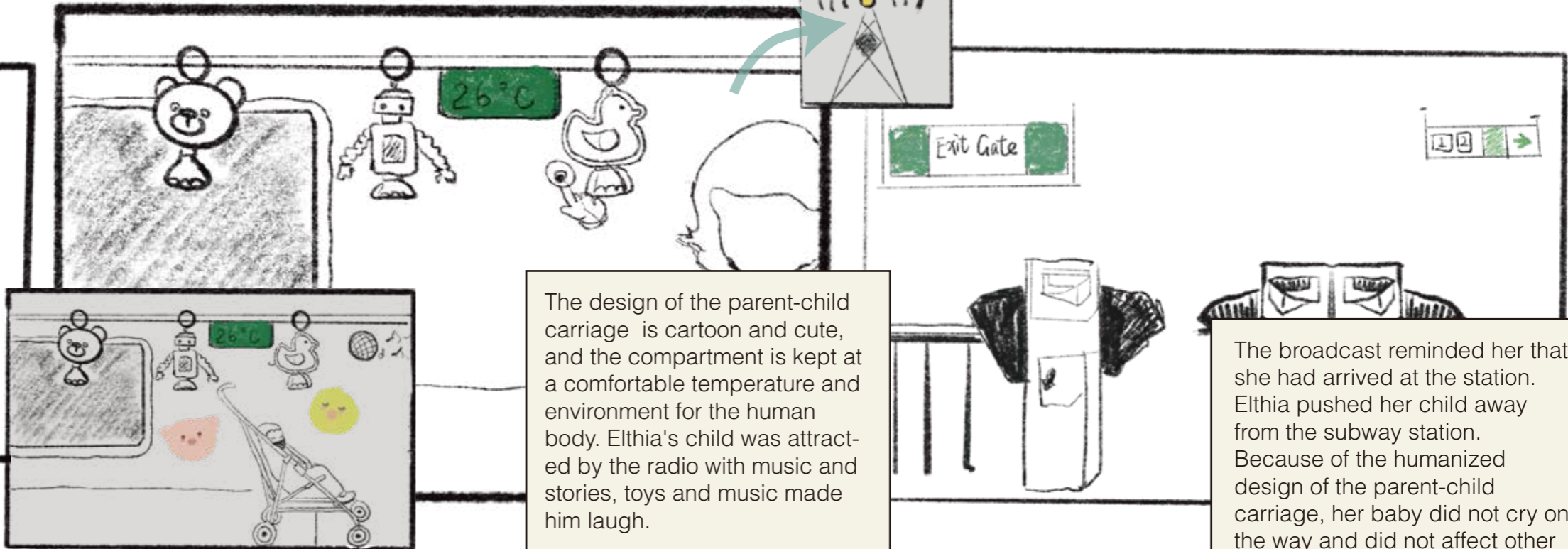
Arriving at the subway station, elthia accepts the staff's temperature check.



After the security check, she stood in the waiting area. The sign of the subway station shows the time of arrival of the subway.



The newly launched parent-child carriage can clearly understand the arrival time of the subway and the degree of passenger congestion



The design of the parent-child carriage is cartoon and cute, and the compartment is kept at a comfortable temperature and environment for the human body. Elthia's child was attracted by the radio with music and stories, toys and music made him laugh.

The broadcast reminded her that she had arrived at the station. Elthia pushed her child away from the subway station. Because of the humanized design of the parent-child carriage, her baby did not cry on the way and did not affect other passengers, which made her very happy.

DESIGN BRIEF



LINE UP AT PLATFORM

Problems:

- Distribution
- Closing time
- First down and then up
- Easy to go to wrong direction

Direction:

Help passengers to develop good habits and awareness through motion picture on gate and ground

Definition:

Place a screen with induction and feedback to provide information and remind passengers to regulate behavior through some dynamic imagesground



IN CARRIAGE

Problems:

- Crowded at gate, uneven distribution
- Do not prepare for getting off

Direction:

Remind passengers of the reasonable position to stand through motion picture
Remind passengers to get ready to get off

Definition:

Place a screen on ceiling of carriage to display real-time distribution in the compartment to remind passengers of the reasonable standing position to improve the utilization of carriage space



IN CARRIAGE

Problems:

- Stand in disorder on escalator
- Hard to find washrooms
- Arriving time of next train

Direction:

Provide clear and plentiful information about the facilities in station

Definition:

Place a screen at station entrance to provide plentiful information to remind passengers to regulate behavior