Introduction

These days, everybody, everywhere seems to be busy and time-scarcity problem afflicts most people all over the globe. Facilitating procedures to reduce time consuming activities has become so important that various applications are developed in different subjects. In this article the idea of providing an application which is useful for passengers at stations is proposed. By this application passengers even visually impaired people at stations can get directions to their seats or other station facilities in the shortest time.

What is SGAPP?

SGAPP, Station Guidance Application, is an indoor navigation application that helps passengers to get where they want at stations in easiest way in the shortest time. SGAPP finds directions from where you are to your destination and shows paths through your mobile camera. by inserting their ticket information, passengers could get directions to their seats on departure platform. Any other places at station, as well as restaurant, security office, information panel and other station facilities are easily accessible. This application guides people with visual impairments to their destinations benefiting voice navigation.

How SGAPP works ???

GPS and IPS

To recognize the location of the users, positioning systems such as GPS and IPS are required. GPS, a free, satellite-based radionavigation system, provides geolocation and time information to the GPS receiver anywhere on or near the earth. Obstacles such as mountains and buildings block the relatively weak GPS signals. IPS, Indoor positioning system, provides location information, using short-range signaling beacons.

Unlike GPS, Indoor positioning system does not provide global coverage. Instead it can be used as a complementary positioning technology to GPS especially in areas where GPS does not reach or is weak, for example, inside buildings, or urban canyons. Detecting the exact and accurate location of the user, with less than one meter positioning error, is another advantage of IPS in comparison to GPS.

AR Technology

Augmented reality is the integration of digital information with the users environment in real time. Unlike virtual reality, which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on it.

Voice Navigation

Application can receive voice input instead of typing the destination on the device. Voice navigating will start by spoken turn-by-turn instructions. It will provide users with precise information about the name of the different parts of the station, directions and distances to the destination.
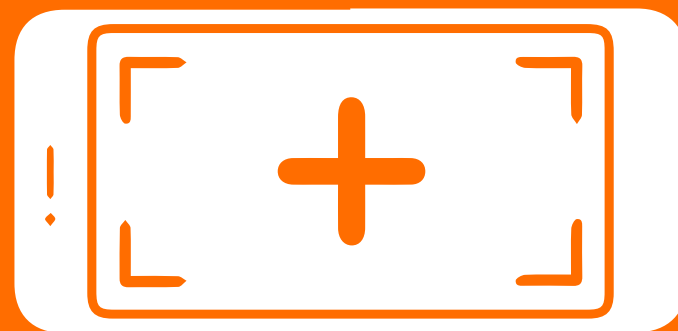
step by step to your seat by:
AR Navigation

Import your tracking code

With this code the application can access to all data about your ticket, including train number, wagon number and seat number.

or Scan your Ticket

Scan the QR code on your ticket so application can access to the ticket information.

Navigating ...

As application accesses to the ticket information, indoor navigating starts. Directions to the right platform and wagon will be demonstrated as a virtual line through the camera.
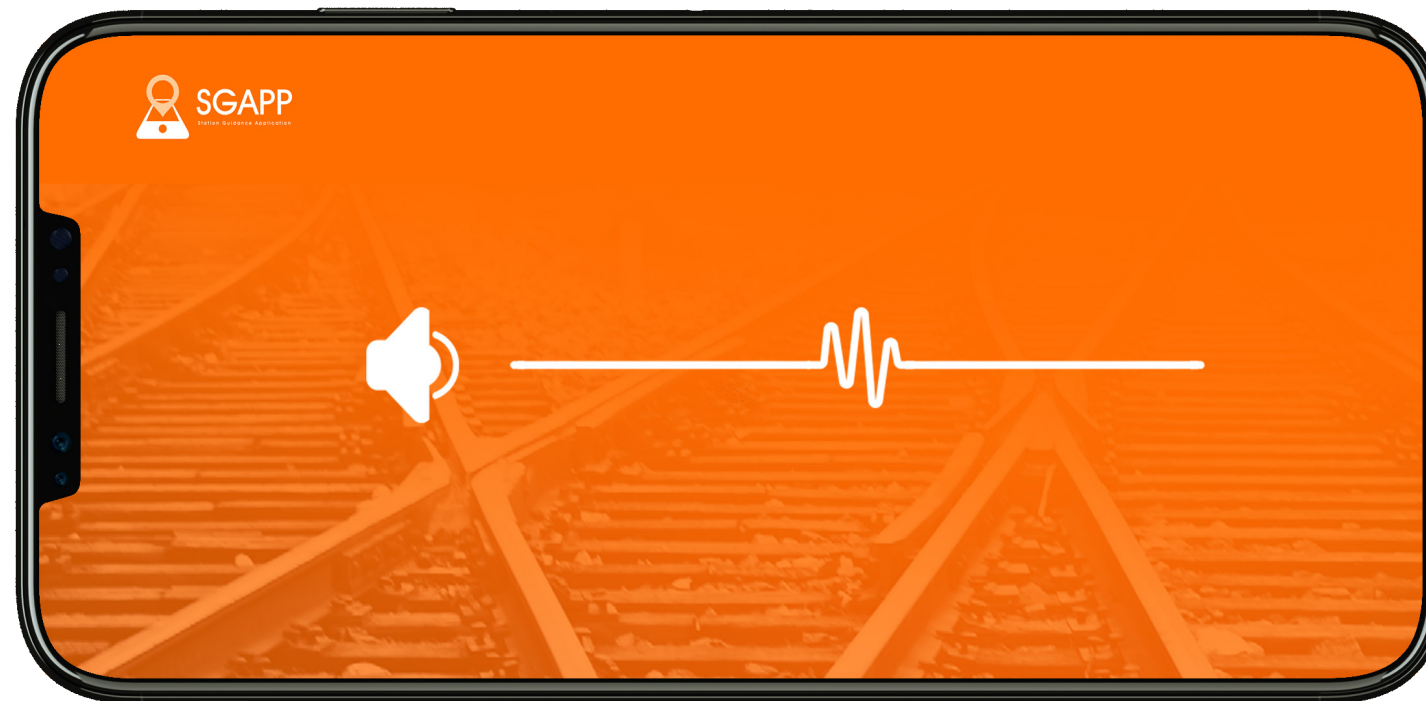
Say tracking code

People with visual impairments can spell tracking code. It includes your seat, your wagon and your train number on server. With this code the application can access all data about your ticket.

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Say your tracking code...

Voice Navigating ...

As application accesses to the ticket information, it will find the directions and navigates passenger to the place with turn-by-turn voice directions.
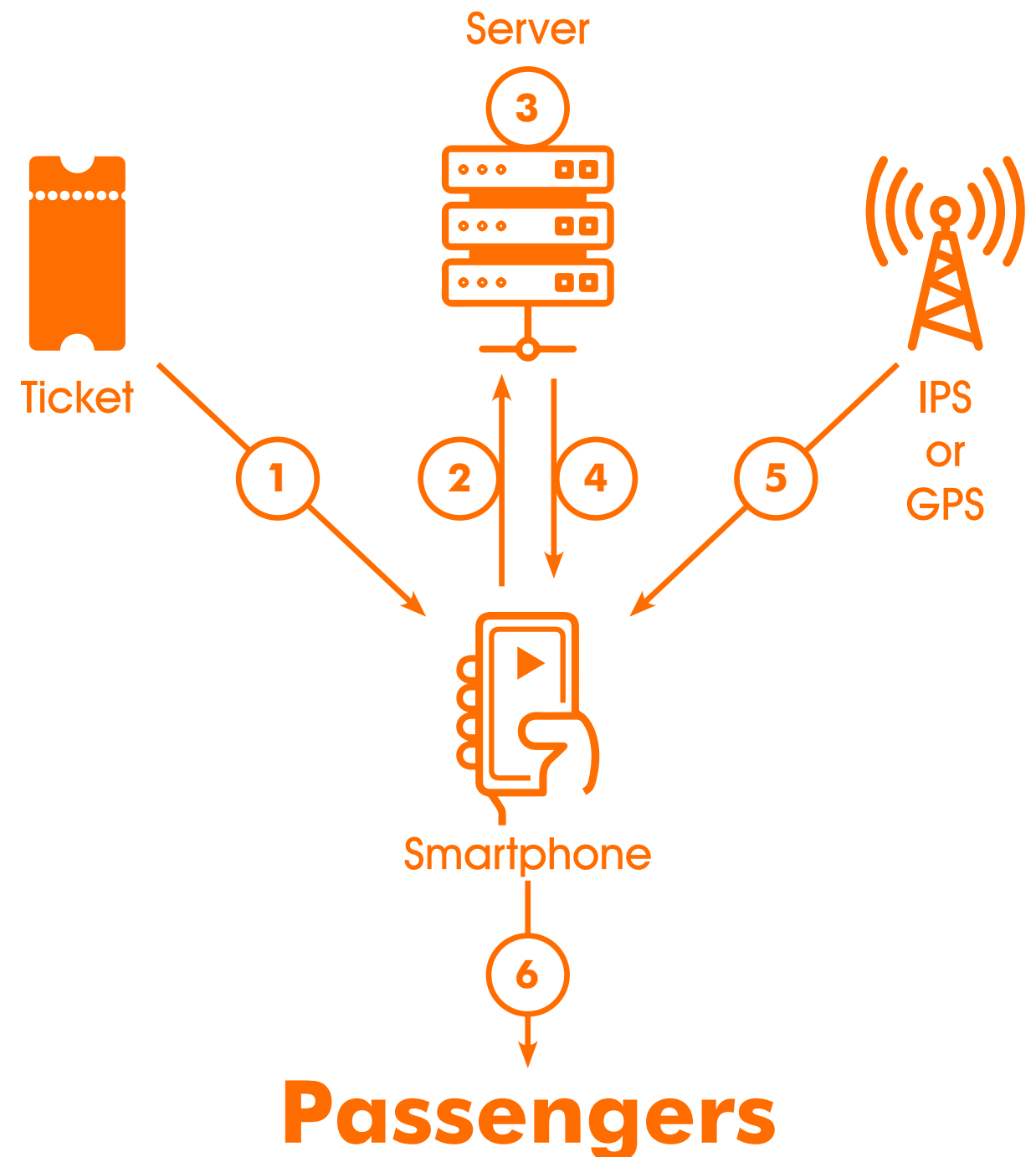
Procedure

⚠ Procedure

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1.Insert tracking code to SGAPP.

2.The inserted tracking code will send to server.

3.All information about ticket, as well as seat number, train number, wagon number and station map are in server.

4.The related information will be sent to the phone so application will be able to detect exact location of train and departure platform.

5.Station map is saved in application. Phone location gained from GPS or IPS. By using locations and station map, SGAPP would find the best way to your destination

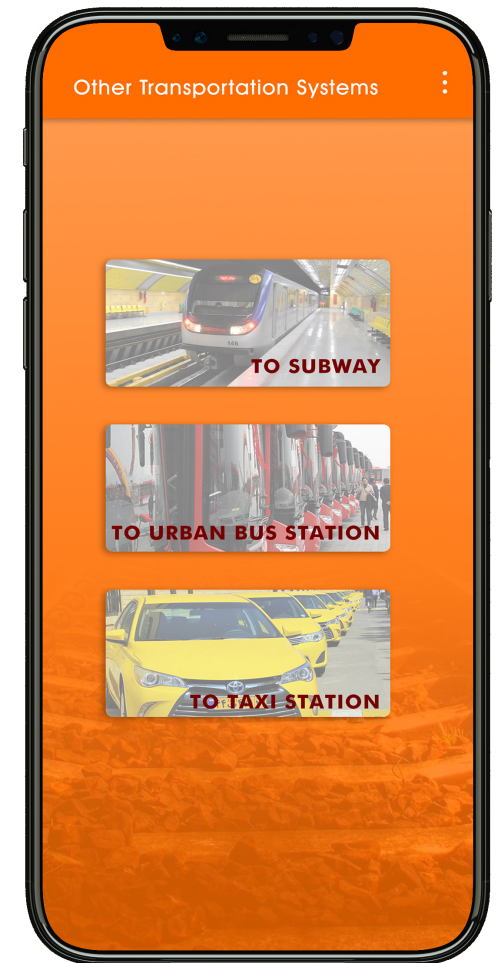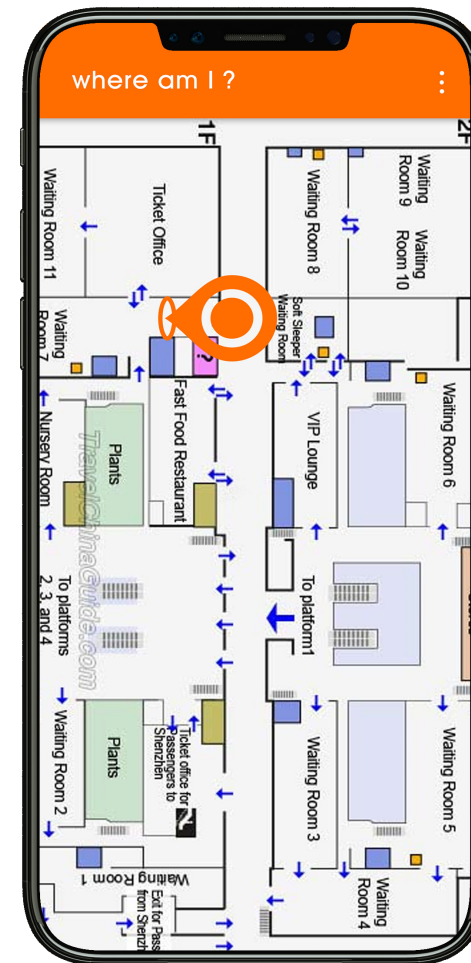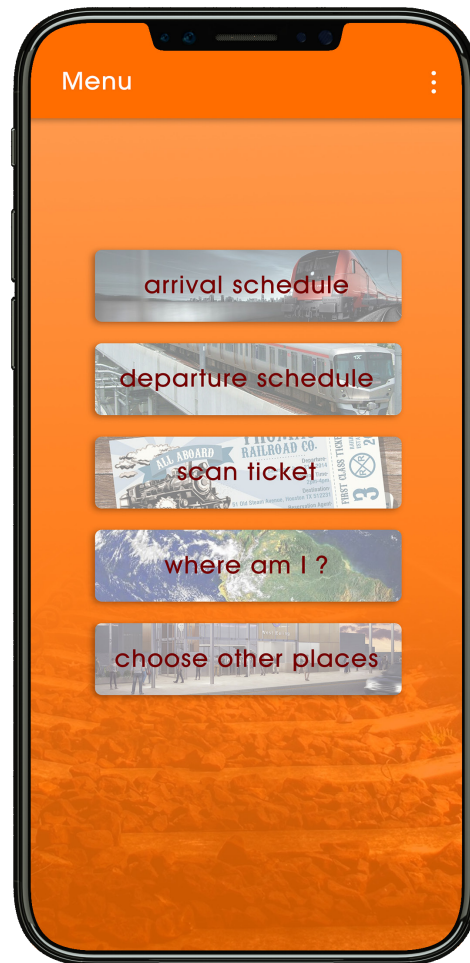6. SGAPP shows you the navigation in AR/Voice.

Server

3

Ticket

1

2   4

5

IPS
or
GPS

Smartphone

6

Passengers

Other features

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SGAPP Screenshots

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Station Guidance Application

Phone No. or Username:

Password:

Create an account
Forget Password ?

Menu

arrival schedule

departure schedule

scan ticket

where am I ?

choose other places

Other places

information

security

mother and baby room

smoking zone

restaurant

WC

exit

where am I ?

1F   2F

Waiting Room 11
Waiting Room 9
Waiting Room 10
Ticket Office
Waiting Room 8
Soft Sleeper Waiting Room
Waiting Room 7
Fast Food Restaurant
VIP Lounge
Waiting Room 6
Nursery Room
Plants
To platform1
Waiting Room 5
To platforms 2, 3, and 4
Ticket office for Passengers to Shenzhen
Plants
Waiting Room 3
Waiting Room 2
Waiting Room 1
Exit for Passengers from Shenzhen
Waiting Room 4

Other Transportation Systems

TO SUBWAY

TO URBAN BUS STATION

TO TAXI STATION

SGAPP features:

• Benefiting AR technology provides directions based on existing environment which facilitates passengers guidance on finding their destination.

• Minimizes wasting time at stations.

• Provides list of station facilities, so passenger can get the directions just by one touch.

• Any changes in trains arrival time schedule would be alarmed to passengers by notification.

• exact location of seats would easily be accessible.

• Is a great guidance for people with visual impairments by voice navigation.

• It will connect passengers to the other transportation modes as well as nearest subway, taxi or bus stations.

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