



# TECHNICITY FINAL PROJECT

HAIL A TAXI IN BEIJING

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Photo Credit: Miao Wang

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# PROJECT TOPIC

The project Hail a taxi in Beijing will explore how new technology can be used to remedy the issue that people living in Beijing have difficulty in hailing a taxi during peak hours.

A mobil application will be introduced in this project. Also, the reference book will cover public enegaemnt process, data collection process, design process, and how to implement the mobile application.

# OBJECTIVE

By exploring the issue, I would like to introduce how, instead of better government policies, new technology like mobile application could help the passengers hail a taxi during peak hours, how the technology could benefit taxi drivers, and how the new technology work with government ideas.



# ABOUT THE TARGET CITY: BEIJING



Peak hour traffic congestion. Photographer: Tomohiro Ohsumi.  
(<http://www.bloomberg.com/news/2013-06-06/beijing-raises-cab-fares-as-taxis-disappear-during-rush-hours.html>)



People are trying to hail a cab.  
(<http://cfo-dailyreport.com/china-how-to-pass-your-next-taxi-audition/>)

## Background

Beijing is the political and economic center of China. The current population is estimated as 21,229,000. Beijing is divided into 16 districts, and 4 of them are defined as “downtown” district: ChaoYang, HaiDian, XiCheng, DongCheng.

## Current Condition and Issue

There is a high demand of taxi service in Beijing because of the convenience and acceptable rates. There are 66,000 taxi in Beijing. Taxi has been one of the essential public transportation.

However, recently, during peak traffic time and within several districts, taxi drivers often refuse rides until traffic subsided. The reason was that, firstly, the time costs of drivers were not part of the cab fares. Secondly, with the increasing price of gas, it was costly enough for a taxi driver to run a cab during normal traffic condition, not to mention a long travel during peak hours. In a word, it was not profitable to carry passengers during rush hours. The Passengers also felt hard to reach an agreement with drivers. Thus, solutions which can benefit both passengers and drivers are needed.

# PUBLIC ENGAGEMENT

## Who were the participants?

The participants were taxi drivers and people from 10 choicen areas in Beijing. The 10 areas include commercial areas, office areas, school districts, residential communities and train station. In these 10 areas, the taxi service demand is higher than other areas.

In my project, I asked ten of my friends to help me with the public engagement process. They were survey interviewers and they collected the results for me. Each of them sent out 50 survey copies.

**Location:** Xueyuanlu, university district  
**Interviewer:** Yao Wang, student in China University of Geosciences  
**Participants:** Students and taxi drivers

**Location:** Sanlitun, shopping area, bar streets  
**Interviewer:** Emma Zhang, resident of Sanlitun Community  
**Participants:** Shoppers and taxi drivers

**Location:** Gulou, a historic site  
**Interviewer:** Si Song resident of Gulou area  
**Participants:** Visitors and taxi drivers

**Location:** Wangjing, Commercial district  
**Interviewer:** Faye Dai works in Siemens China  
**Participants:** Professionals working in Wangjing and taxi drivers

**Location:** Guomao/ CBD  
**Interviewer:** Tim Li works in Jianwai SOHO  
**Participants:** Professionals working in CBD and taxi drivers

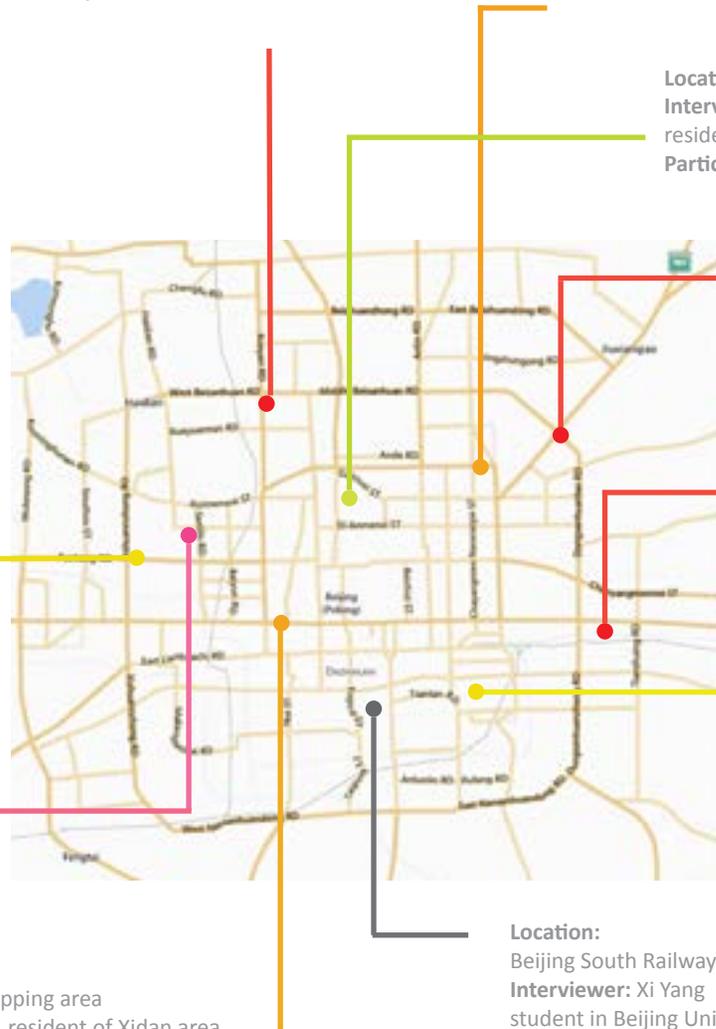
**Location:** Fangze Residential Community  
**Interviewer:** Manae Zhang, resident  
**Participants:** Residents in Fangze and taxi drivers

**Location:** Beijing South Railway Station  
**Interviewer:** Xi Yang student in Beijing University of Technology  
**Participants:** Commuters and taxi drivers

**Location:** Xidan, shopping area  
**Interviewer:** Chao li, resident of Xidan area  
**Participants:** Shoppers and taxi drivers

**Location:** Yiyuanju Residential Community  
**Interviewer:** Yue Zhu, resident  
**Participants:** Residents and taxi drivers

**Location:** Sanlihe government agency area  
**Interviewer:** Qian li works in China Geological Survey  
**Participants:** Professionals working in government agencies and taxi drivers



# What is the engagement methods? - Survey & Street interview

## Passenger survey questions

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**Gender** - Female - Male

**What is your age?**

-20 or less -21 – 30 -31 – 40 -40 – 50

**How often do you take taxi per week during rush hour?**

Once or twice per week

Three or four times per week

More than five times a week

Never take a taxi during rush hour

**How do you hail a taxi during rush hour?**

- Street hail - Phone reservation - Mobile Application

**How long it takes you to hail a taxi during rush hour?**

-5 mins or less -5-10 mins -10 – 20 mins -more that 30 mins

**What is the reason if you don't want to take a taxi?**

Too many people are hailing taxi on street

Traffic congestion

**Do you use smart phone?**

Yes

No

**If there is a taxi hail APP, will you use it on your smart phone?**

I would like to try No

I would like to try but I don't use smart phone

**If there is a taxi hail APP, which feature do you most care about**

-Reliability -Convenience -How much data it will spend -Price

## Taxi driver survey questions

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**Gender** - Female - Male

**What is your age?**

-20 or less -21 – 30 -31 – 40 -40 – 50

**How long do you work everyday?**

-Less tha 6 hours -6 - 12 hours -More than 12hours

**Have you ever reject a passenger during rush hour?**

I never take passengers during rush hour

Yes, sometimes.

Yes, not very often.

Never

**Where do you live?** - Within 5th ring - Outside 5th ring

**What is the reason if you reject a passenger during rush hour?**

Traffic congestion

We are not going to the same direction

The destination is too far

Other

**What kind of passengers do you prefer to take during rush hour?**

The passengers who are going to the same directions as me

The passengers who are going to far places

The passengers who are willingly to pay more than what they should pay

Don't want to give a ride

**Do you use smart phone?** - Yes - No

**If there is a taxi hail APP, will you use it on your smart phone?**

I would like to try

I am not sure

## Street Interview what we learned from the participants

### Taxi Drivers

“ I don’t want to give a ride during rush hour, because I don’t make money at all during that time.”

“The operation fee is relatively high.”

“Salary is too low.”

“The passengers want to call our company and give me bad feedback, but I don’t really care because there are so many calls like that everyday.”

“ We (drivers and passengers) are good friends during non-rush hours.”

“ I prefer pick people up at airport/ train station.”

“ Several years ago, drivers competed with each other; today, passengers compete with each other.”

### Passengers

“ I am 60 years old. It is unbelievable to see that taxi has become so common in Beijing.”

“ You have to make an AGREEMENT with the drivers during certain period!”

“ Even if I am willing to pay extra, they still refused me..”

“ It is hard for me to take subway during rush hour, I have to take a taxi.”

“ I saw a lot of taxis stop at our residential community. It seems they refer residential areas during rush hours.”

“ You’d better drive your car if you want to hang out at night in places like Sanlitun.”

“ I really enjoy talking with Beijing taxi drivers, they like to talk to me too.”

“ I know there are lots of complains, but drivers are not the factor of this issue.”

# DATA ANALYSIS

## FACT

There are **21,229,000** people living in Beijing.

There are approximately **90,000** taxi drivers in Beijing.

There are **66,000** taxis in Beijing.

There are **700,000,000** trips operated every year

The taxi driver salary in Beijing is **53,892** CNY.

The average salary in Beijing is **56,061** CNY.

The total land area of Beijing is **6,332** sq ml

Total urban area (within 5th Ring Rd) of Beijing is **423**sq ml

Morning rush hour: **7:00am - 9:00am**

Evening rush hour: **5pm - 7pm**

## RESOURCE

[www.travelchinaguide.com/cityguides/beijing/transportation/taxi.htm](http://www.travelchinaguide.com/cityguides/beijing/transportation/taxi.htm)

[www.bloomberg.com/news/2013-06-06/beijing-raises-cab-fares-as-taxis-disappear-during-rush-hours.html](http://www.bloomberg.com/news/2013-06-06/beijing-raises-cab-fares-as-taxis-disappear-during-rush-hours.html)

[www.bjpc.gov.cn/tztg/201306/t6226277.htm](http://www.bjpc.gov.cn/tztg/201306/t6226277.htm)

[www.apec-china.org.cn/cn/beijing\\_beijing.htm](http://www.apec-china.org.cn/cn/beijing_beijing.htm)

## Taxi Rate Table

Minimum Rate	13 CNY (2.12 \$) for the first 3 km (1.86 miles) or less
Basic Unite Rate	2.3 CNY for each addition kilometer during daytime
Waitgin Rate	During rush hour, when the speed is lower that 12km/ hr (7.5 mile/ hr), charge extra fare of 2 km for every 5 minutes. During other time period, charge extra fare of 1 km for every 5 minutes.
Reservation Fee	6 CNY for reservation over 4 hours in advance 5 CNY for reservation within 4 hours
Night Fee	From 11pm - 5am, unit rate 2.76 CNY
Fuel Surcharge	1 CNY per ride

Table Source: Beijing Municipal Commission of Development and Reform, 2013

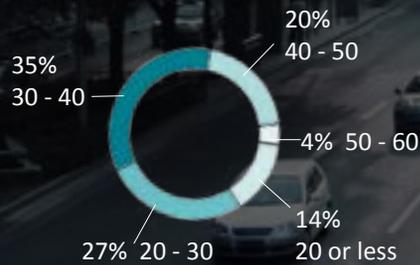
# Passenger Survey Data Analysis



Most Jiepang check-in places in Beijing

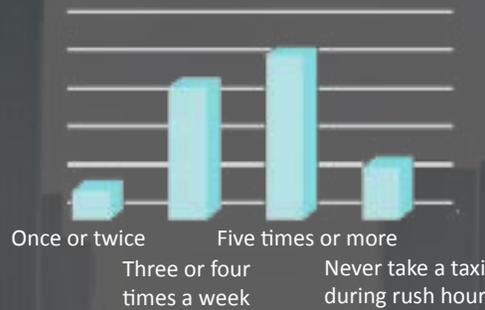


Sex of passengers



Passenger age distribution

How often do you take a taxi during rush hour per week?



How do you hail a taxi during rush hour?



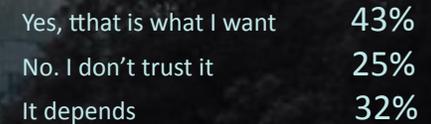
How long it takes you to hail a taxi during rush hour?



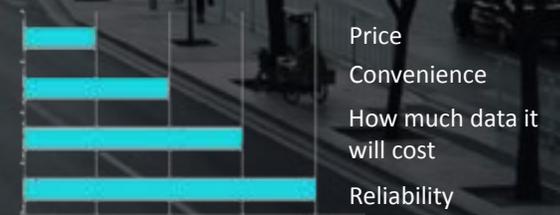
Do you use smart phone?



Would you like to use Taxi hail APP on your phone when you try to hail a cab?

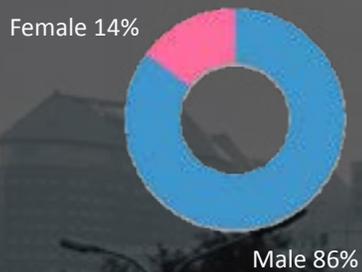


If there is a taxi hail APP, which feature do you most look forward to?



# Taxi Driver Survey Data Analysis

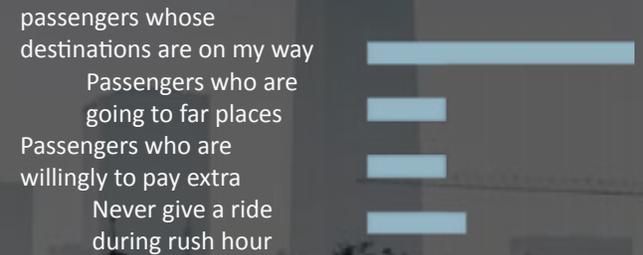
Sex of taxi drivers



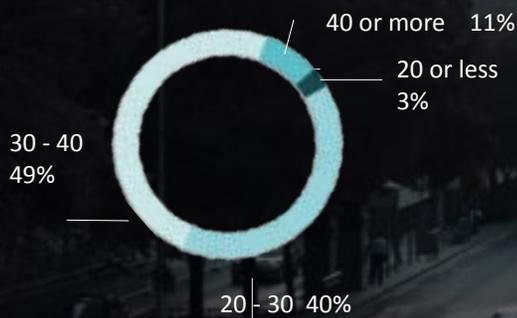
How long do you work everyday?



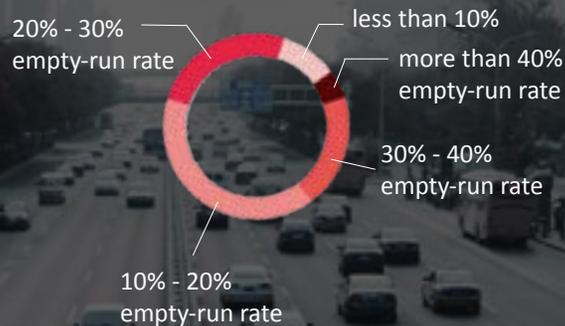
What kind of passengers do you prefer to take during rush hour?



Taxi driver age distribution



Daily empty-run rate



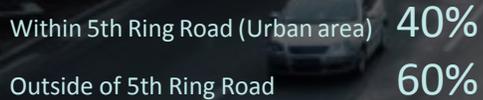
Do you use smart phone?



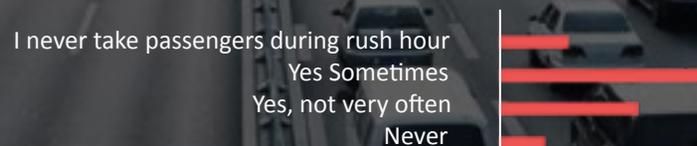
Would you like to use Taxi hail APP on your smart phone?



Where do you live?



Have you ever rejected a passenger during rush hour?



# SURVEY DATA ANALYSIS RESULT

## What did I find

- Taxi has been one of the essential public transportation in Beijing.
- Most riders feel hard hailing a taxi during rush hour
- Most taxi drivers feel hard giving a ride during rush hour
- Two reasons that taxi drivers refuse rides until traffic subsided:  
**First**, the time costs of drivers were not part of the cab fares.  
**Second**, with the increasing price of gas, it was costly enough for a taxi driver to run a cab during normal traffic condition, not to mention a long travel during peak hours. In a word, it was not profitable to carry passengers during rush hours.
- Both taxi drivers and passengers want a solution that help the passengers hail a taxi during peak hours and benefit taxi drivers

# DESIGN Concept and key elements

- **Product:** Hail A TAXI Mobile Application

- **Concept and key elements:**

Users can register for free. Phone number are required to provide to make sure that passengers and drivers can contact with each other if they have reservation.

The Hail A TAXI mobile application will work together with Jiebang check-in, Baidu Map, and Beijing Transportation Smart Card. Taxi drivers and nearby passengers can contact with each other by using the APP and make a quick reservation. Drivers and passengers will be charged a fee if one party cancel the reservation late or do not show up for the ride.

Hail A TAXI APP will work based on the government regulation. The regulation forbids bargain and bid in taxi service market because they will violate the existing price regulations and cause market instability. Hail A TAXI APP will make sure it will not increase transportation costs for citizens.

Passengers can give feedback to taxi drivers.

Hail A TAXI APP will be available for Apple and Android Devices.

Hail A TAXI APP support on-line payment by credit card or Beijing Transportation Smart Card.

Passengers will pay a reservation fee, which is 5 CNY.

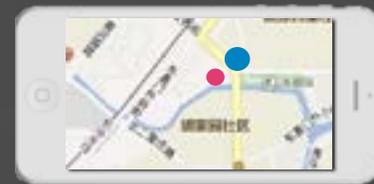
# HOW IT WORKS



Passenger Login



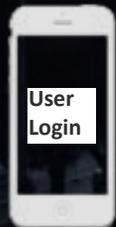
The Map will show near-by available taxis.



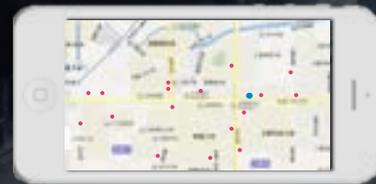
Select a taxi.  
Then enter destination.



Passenger confirm  
and select a payment



Taxi Driver Login



The Map will show near-by people who are using the APP.



Send request

If the driver agree to give a ride,  
he can contact to the passenger  
by phone to confirm the request.

# MOBILE TAXI APPS IN BEIJING AND CONCLUSION



Hail A TAXI provides more entertainment features. For example, users can access to Jiebang website and search near-by restaurant/ shops with the APP.

<b>Payment Method</b>	WeChat	Alipay	Credit Card, Beijing Transportation Smart Card.
<b>User Group</b>	WeChat users	Alipay users	Registered users, Jiebang users, Baidu users
<b>Extra Fee / Reservation fee</b>	Passengers pay flexible extra tips	Passengers pay flexible extra tips. Passengers have cash back.	5 CNY for reservation fee

With the new smart taxi App, more groups of people can be benefit from the application. Both drivers and passengers can save time in looking for each others. The issue that people feel hard to hail a taxi can be released.

The new smart taxi App will also help to improve Beijing Map, for it will send out location data. The smart data will help government to make better regulations on public transportation.