

Ly, Hahn, Jesper and Riccardo



**City parking made EASY**

# Problem

## Statistics

- Milan situation (according to a Study from Politecnico of Milano)
  - 45% of city pollution come from car emissions
  - In 2012 Milano had 2 days traffic block due to European pollution limitation enforcement
- A San Francisco study shows that 30% of the city traffic is people looking for an available parking slot.
- Without smart parking, a study made by Streetline showed, no more than 8 to 10 percent of parking payment violations are ticketed.
- In Los Angeles, a study of a 15-block area estimates that drivers circling for parking cause 950,000 excess vehicle miles per year. This translates to 47,000 gallons in wasted gas and 730 tons of carbon dioxide greenhouse gas.

# Aim

For public parking spots:

- User to find free parking spot
- User easy payment system
- Increase Police control efficiency

# EU Parking system

## ■ Parking machines



# Problems with this System

*EPA (European Parking Association) has defined the Italian parking situation as critical*



photo: Marjan Krebelj 2008

[my.opera.com/nikio](http://my.opera.com/nikio)

# Parking problems: User/citizen

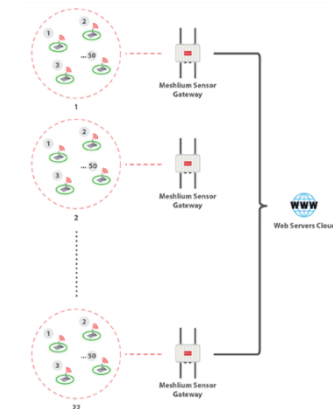
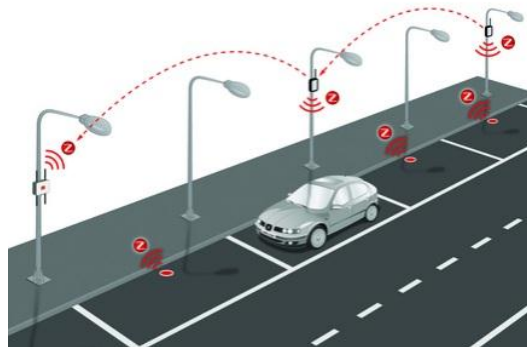
- Time consuming
  - Find free parking
  - Place the receipt in the car
- Late parking tickets

# Parking problems: Administration

- Inefficiency in checking park meter
  - Lost revenues (8-10% of total parking payment infraction are ticketed )
- Machine money leaks

# Competitors technology

- Sensors in each parking spot
- Drill the road 10cm and insert a sensor
- Detects movement or the presence of large metal objects nearby
- If the sensor is within two or three feet of the car, it will register a huge increase in metal or object. When the metal or object content suddenly drops, it is recognized that a car left





# Problems

- Cost
- Interference
- Asphalt unpredictable

Cost: Streetline's standard pricing is \$300 for each sensor and \$150 for each meter monitor, including installation, and a \$30 monthly service fee per device.

Electromagnetic interference from overhead trolley lines. vehicle-detection sensing is only about 90 percent accurate. 10% of customer experiencing problems its too much.

Asphalt is unpredictable and it modifies with temperature

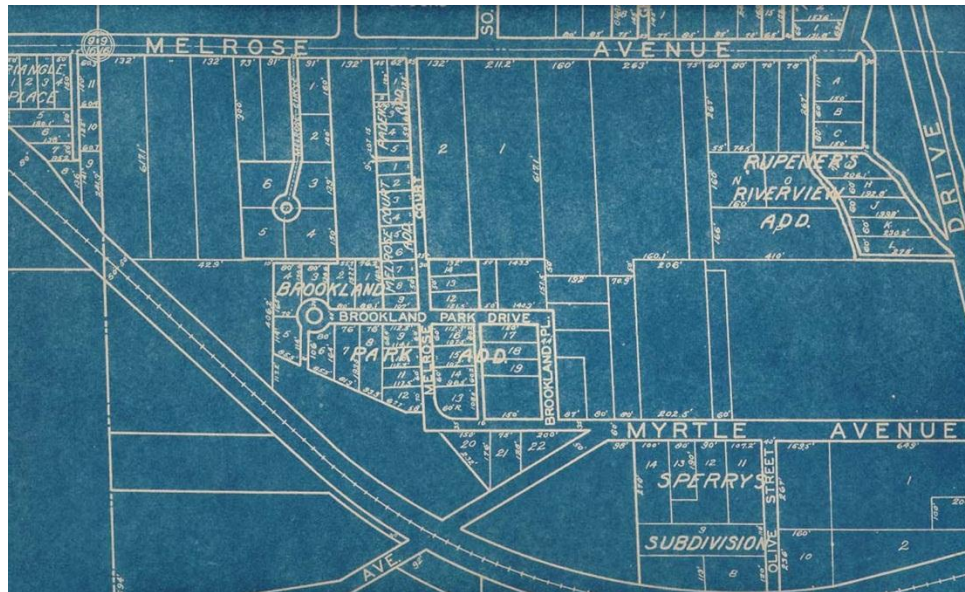
Require mapping plus installation of sensors in each parking spot and also a gateway through the information is collected for storage online.

# Brainstorming session

- 1. Online parking reservation
  - Only works for private parking spots
- 2. Satellite pictures to identify free spots
  - Advance recognition technology is needed
  - Costly
- 3. Temperature sensors
  - Not feasible because of heat differentiation
- 4. GPS Check in
  - Unstable signal -> Not accurate enough
- 5. Proximity sensor + base station
  - Cost and interference
- 6. Cameras movement detection
  - Not feasible with the current technology

# Park-ED Solution

- No sensors usage
- Integration of new application and traditional parking machines



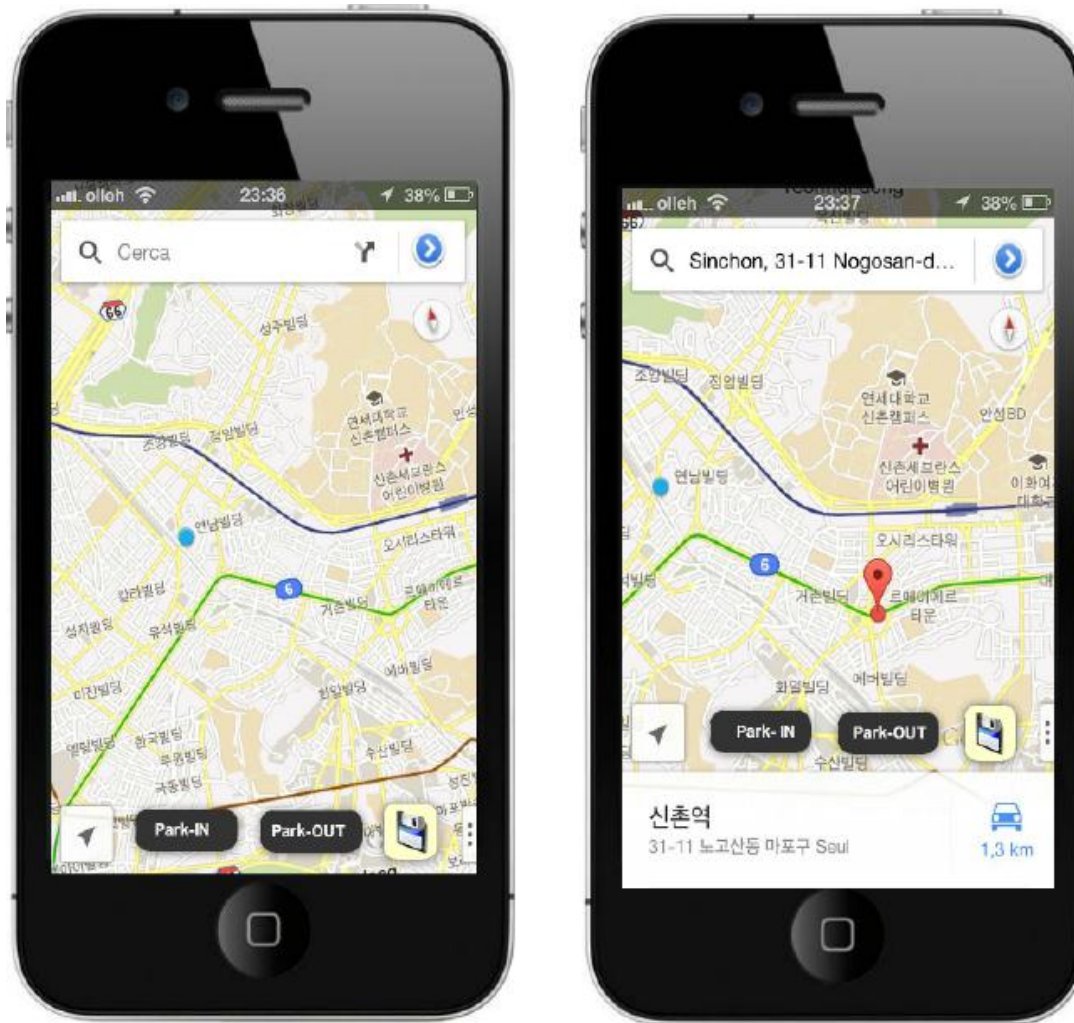
# Park-ED Machine

- Spot #
- Payment
  - Coins
  - T-money
  - ID/Password



(If the user wish to pay with the traditioanl coin method they can still do so but now has the possibility to pay throw electronic payment that works check in- check out so there will no be overdue payment and late parking tickets)

# User Application (navigation)

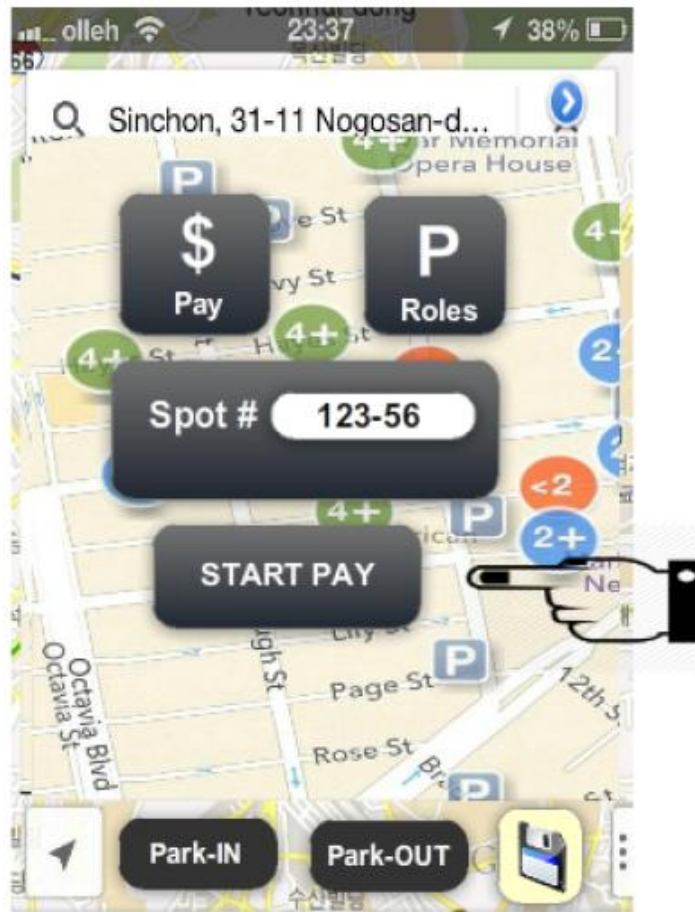


# User Application (navigation)

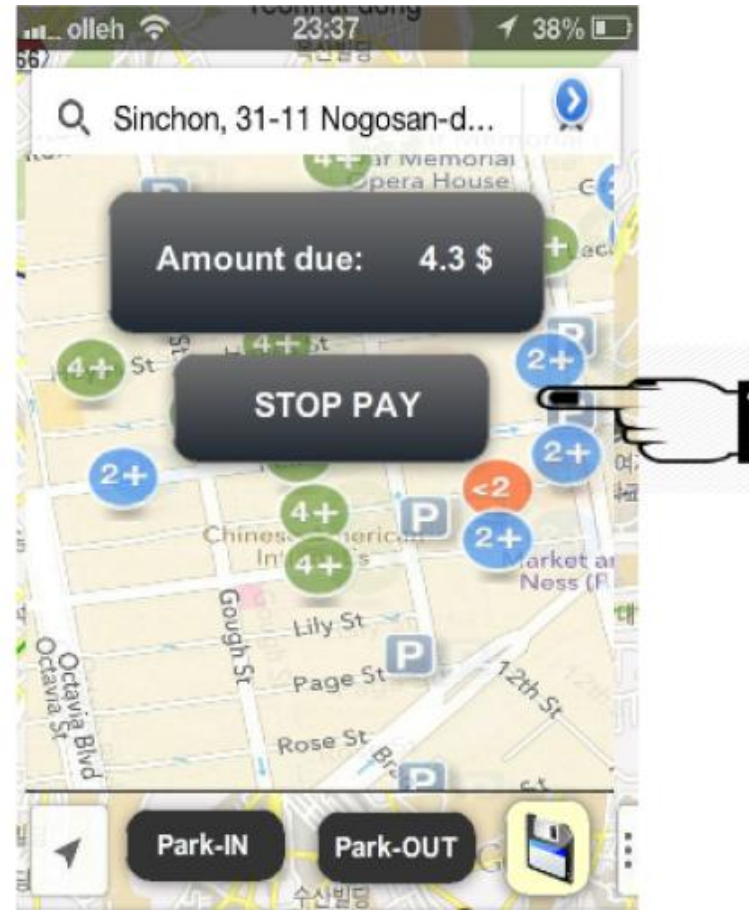




# User Application (Park in/out)



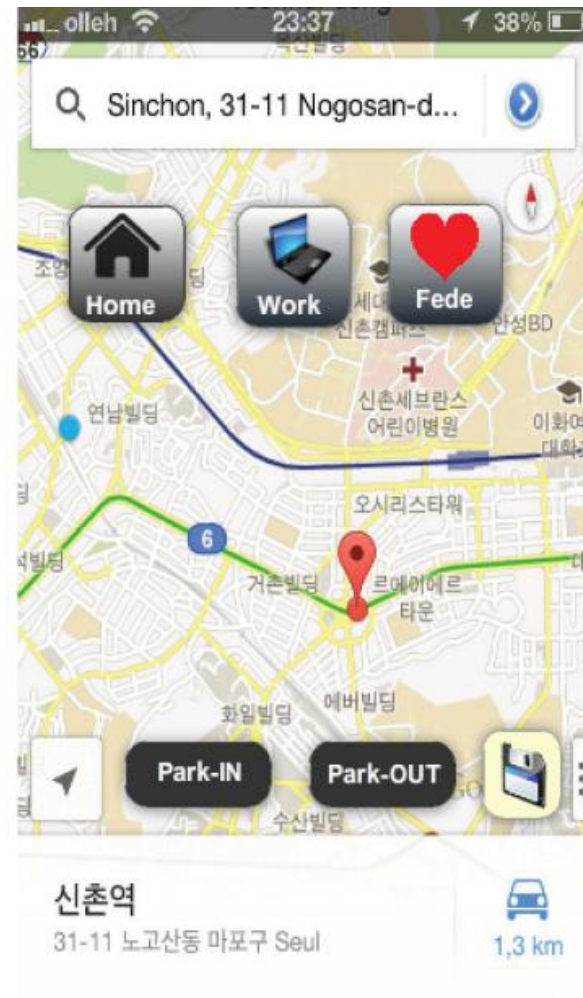
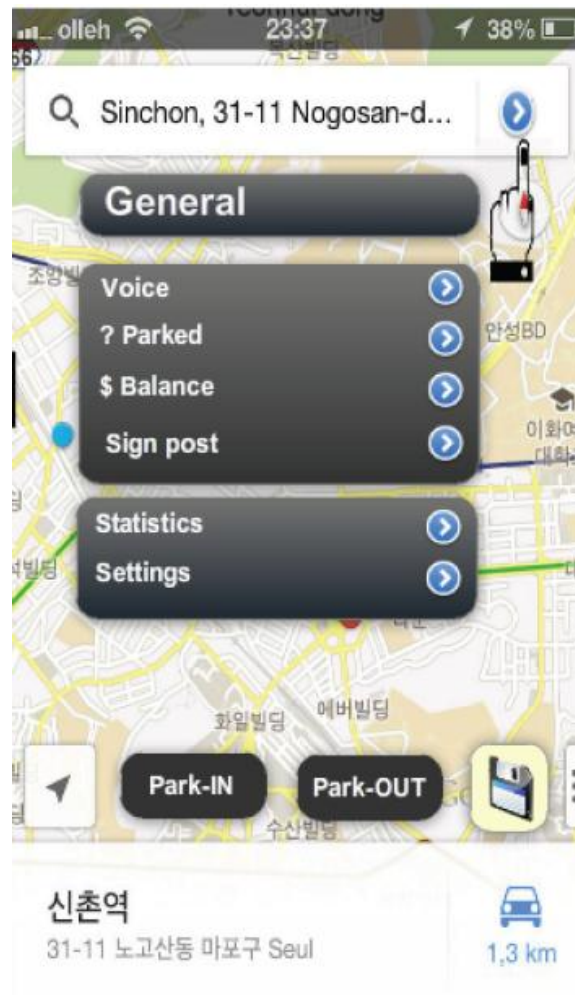
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31-11 노고산동 마포구 Seoul



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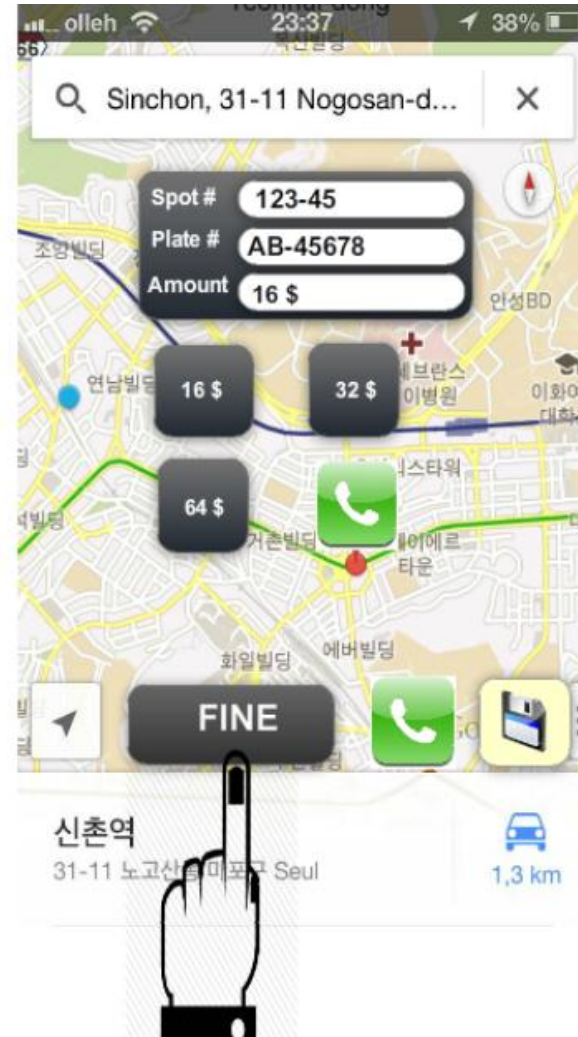
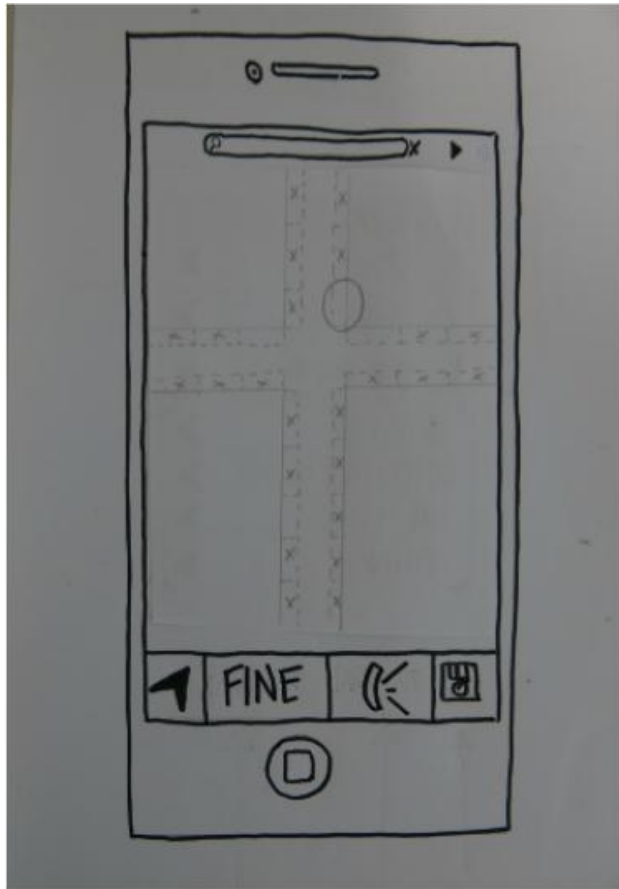


# User application (features)

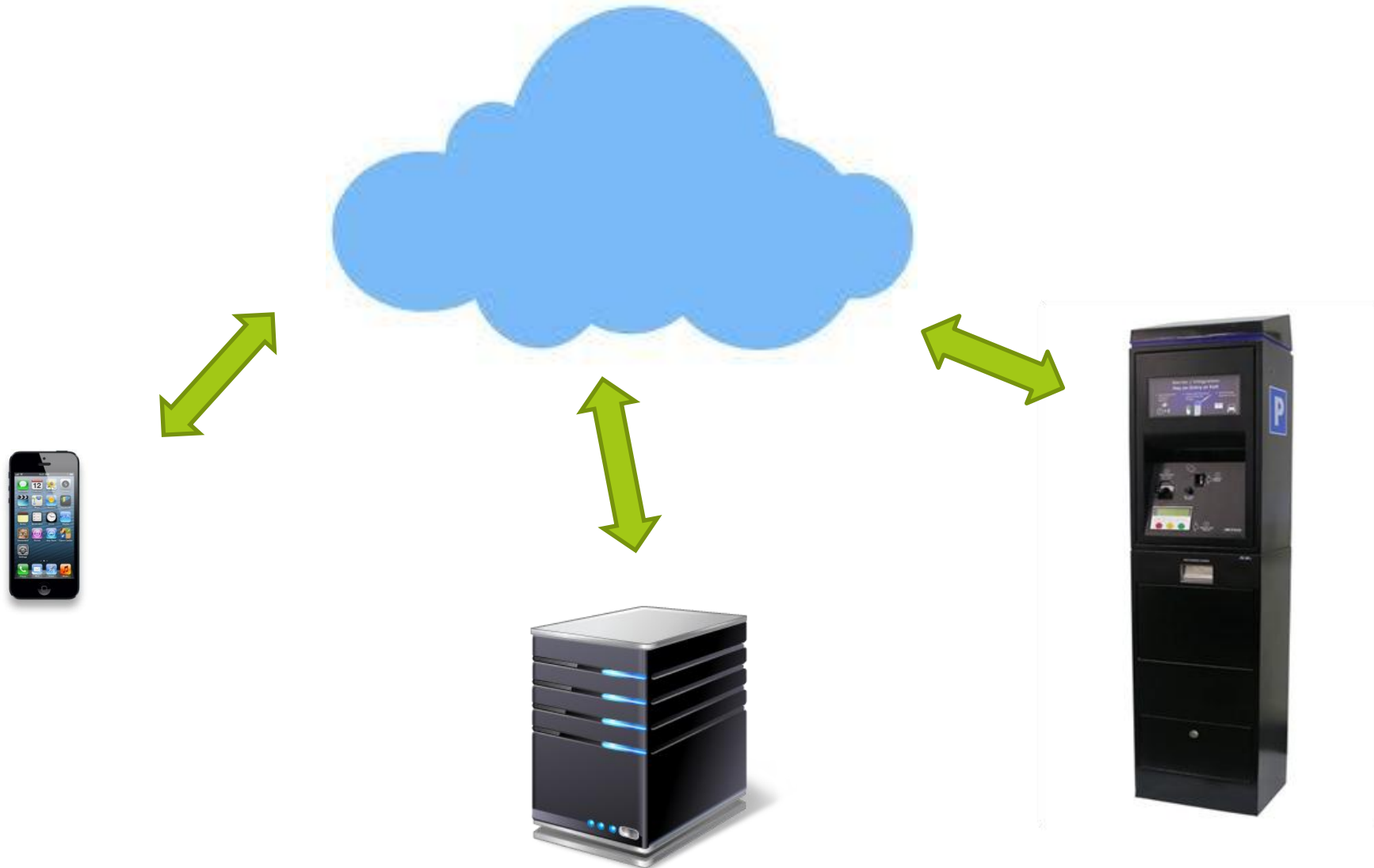




# Police Application



# Connections



# Benefits: User

- Time reduction
  - Free parking spots
  - Payment system
  - Traffic reduction
- No overdue payment
- No late parking ticket

# Benefits: Government

- Increase revenues ( the police car has just to drive around and with image real time detection sees if someone didn't pay)
- less cost for personnel
- Smart pricing (cities can price their parking spots according to their actual value, higher on peak times as in the morning )
- Traffic & pollution reduction
  - Studies show that 30% of the city traffic is people looking for an available parking spot
  - In Milan studys shows that more then 45% of city pollution comes from car emissions

# Monetarization



- ▣ 10% of the government's revenue if checked-in with PARKED
- ▣ Production costs per PARKED parking machine: 1.500€





- ▣ Variable Costs:
  - ▣ Cloud Server, Server, Security
  - ▣ Connection to LAN
  - ▣ Installation
  - ▣ Insurance
  - ▣ Maintenance
- ▣ Investment needed: 450.000€



# Criticalities

- Government:
  - Are seldom early adopters
  - Contracts
- Telecommunication contact
  - Service + Security

# Solutions to possible problems

- No check out  Err. Second is the right one
- Pay the wrong spot/ 2 pay for the same
  - Both electronic payment no problem
  - Coins print ticket and place it on the car
- Residents  1yr. Manual police check  
2yr. Automatic check

# Future Prospects

- Private parking usage
- More info about the drivers propose deals and coupons at drivers
- Voice navigation
- Real time Image detection



# Government Contract

- Currently 2 systems
  - Managed by the government
  - Managed by the private company
- 0 cost for the government/administrator
- 0 cost for the user
- 10% of electronic profits ( industries average is 10%)

# Implementation Plan

## **Year 1**

Market research Europe

Develop prototypes of application

First fundraising

Form a team + feedback

Beta version of application

Machine R&D

Develop the know-how needed for the machine and application

## **Year 2**

Second fundraising

Start establishing contracts with governments

Map parking spots for pilot project

Establish cloud system

Pilot project+ feedbacks

## **Year 3**

Start full implementation

# Q&A

■ Thank you !

- Please note: that we have done some format and content change in the presentation from our last version. Such as:
  - mockapps design
  - better problem definition with statistics
  - better explanation how park-ED system has universal usage not only design for the application user.
  - Monetization strategy
  - Criticalities
  - Future prospects