

Smart shopping CART shopping BAG



Kim, M Han, J

Smart shopping CART shopping BAG

Contents

1. Ideation

1.1. Problems

1.2. Solutions

2. Background Research

2.1. Existing ideas on Smart Cart

3. User Research

3.1. Interview users and Draw needs

4. Persona

5. Design Introduction

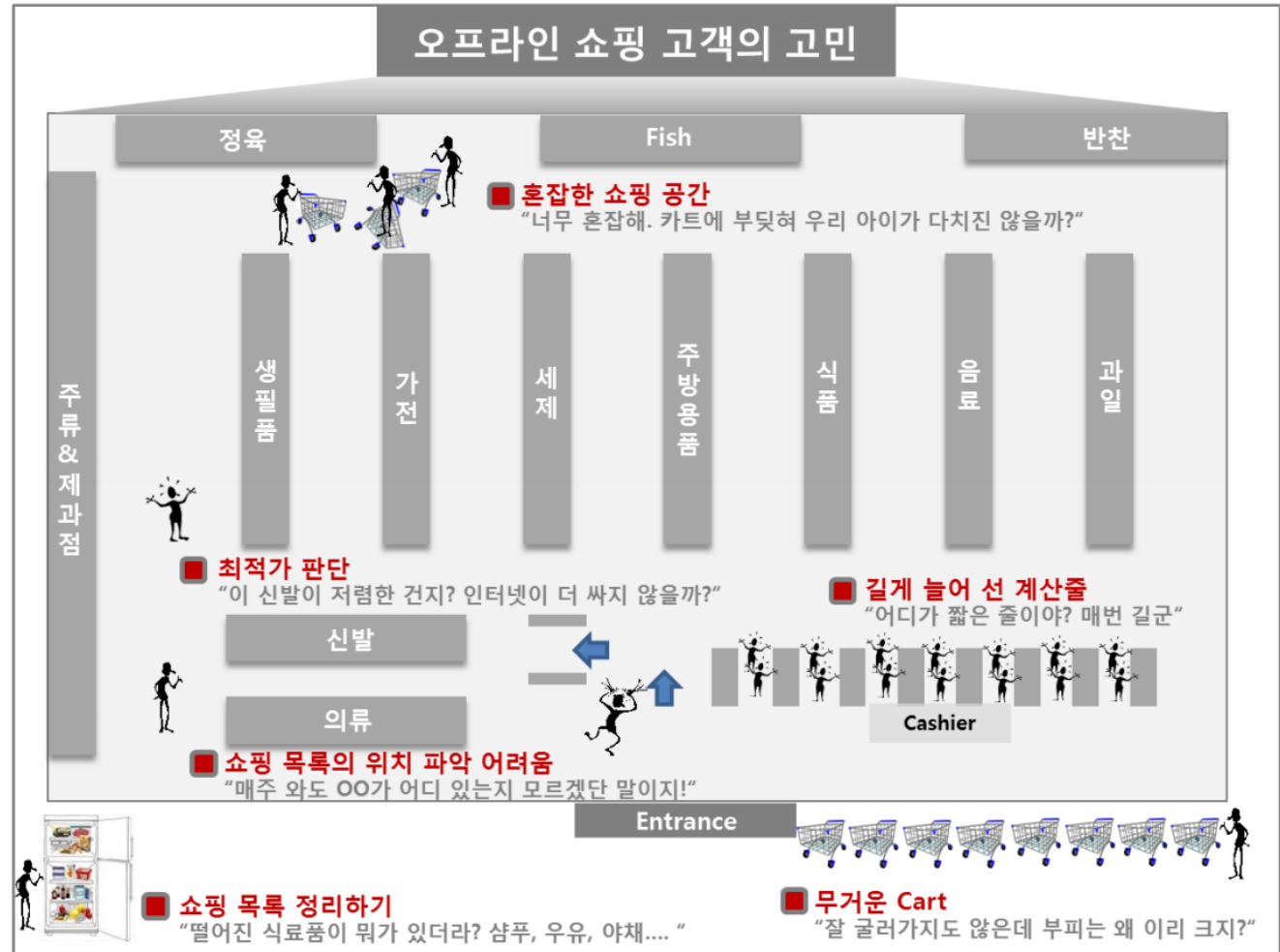
5.1. Design for a new cart and bag

5.2. Applied technologies and features

6. Video Prototyping

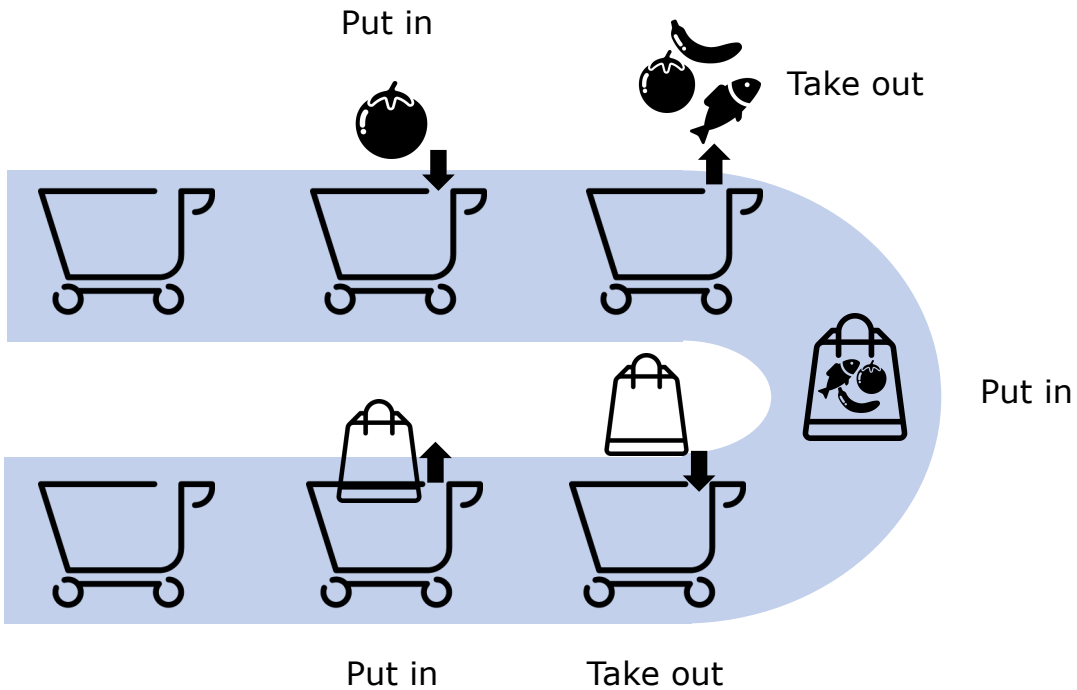
1. Ideation

1.1. Problems



1. Ideation

1.1. Problems



- ① Tiresome
- ② Non-Smart Shopping

1. Ideation

1.1. Problems

What was stuffs to buy?



Where are stuffs to buy?



Don't need but
bought lot of stuffs...



- ① Tiresome
- ② Non-Smart Shopping

1. Ideation

1.2. Solutions

Bother to transfer
multiple times

Non-smart shopping

① Put in only once,
pay right away

② Both cart and bag
give and receive
shopping lists

1. Ideation

1.2. Solutions

Smart Cart & Shopping Bag

Easy payment
when getting
out of the
supermarket

Beacon



Water Mark
barcode scanner

2. Background Research

Existing ideas on Smart Cart

IDEO (1999)
Redesign of the shopping cart
for ABC's Nightline



Supermarket IoT
: Smart Cart
University of California, Santa
Cruz, Engineering Senior Design
Project (2015)



SKT (2011)
Smart Cart for e-mart

Use of FRID, NFC
'But suspended due to lack of business
success...'



2. Background Research

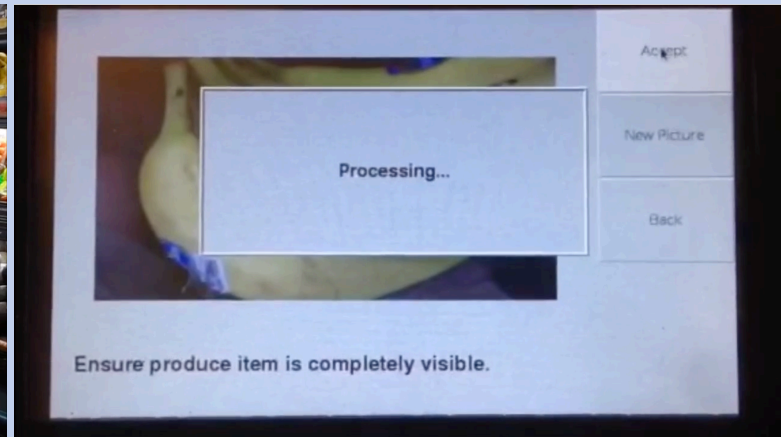
IDEO (1999), Redesign of the shopping cart for ABC's Nightline



2. Background Research

Supermarket IoT : Smart Cart

University of California, Santa Cruz, Engineering Senior Design Project (2015)

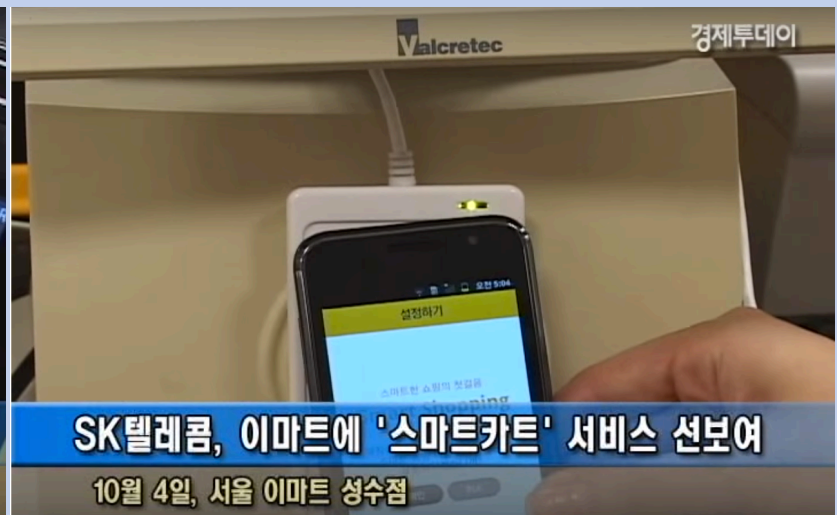


2. Background Research

SKT (2011)

Smart Cart for e-mart

Use of FRID, NFC 'But suspended due to lack of business success...'



3. User Research

Interview users and Draw needs

Interviewee

Woman in their 20s



There are few items to buy,
so it's annoying to wait in line for payment.

Man in their 30s



Woman in their 40s



Only one size of cart, inconvenient.
Uneasy to leave the cart outside
when going to the toilet.

Woman in their 50s



Man in their 50s



It it is easier to find the product
and to compare prices...

4. Persona

Persona for New Ideas



Age : 30s
Job : Salaryman
Gender : Male

- Bother to waiting in line for the payment



Age : 20s
Job : Salarywoman
Gender : Female

- Single household
Mainly using online or mobile payment

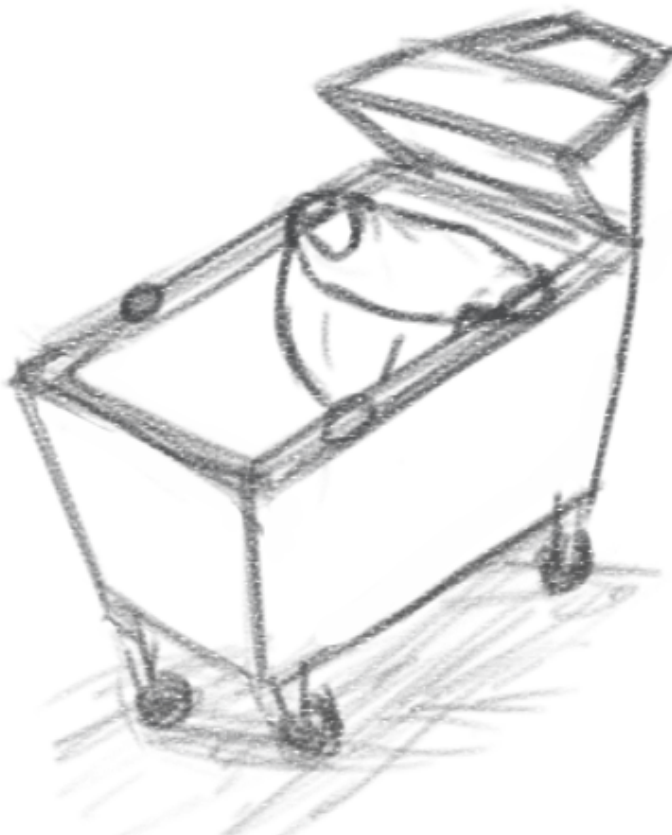


Age : 20 – 40s
Foreign Tourists

- Difficult to find stuffs in market in different languages

5. Design Introduction

5.1. Design for a new cart and bag



Smart Cart
+
Smart shopping Bag

5. Design Introduction

5.1. Design for a new cart and bag



5. Design Introduction

5.1. Design for a new cart and bag



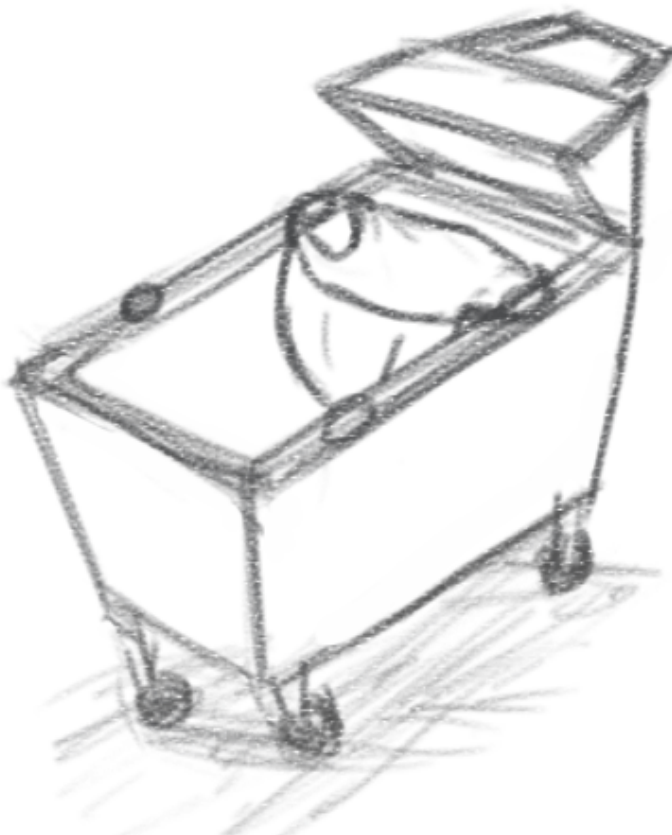
5. Design Introduction

5.1. Design for a new cart and bag



5. Design Introduction

5.2. Applied Technologies and Features



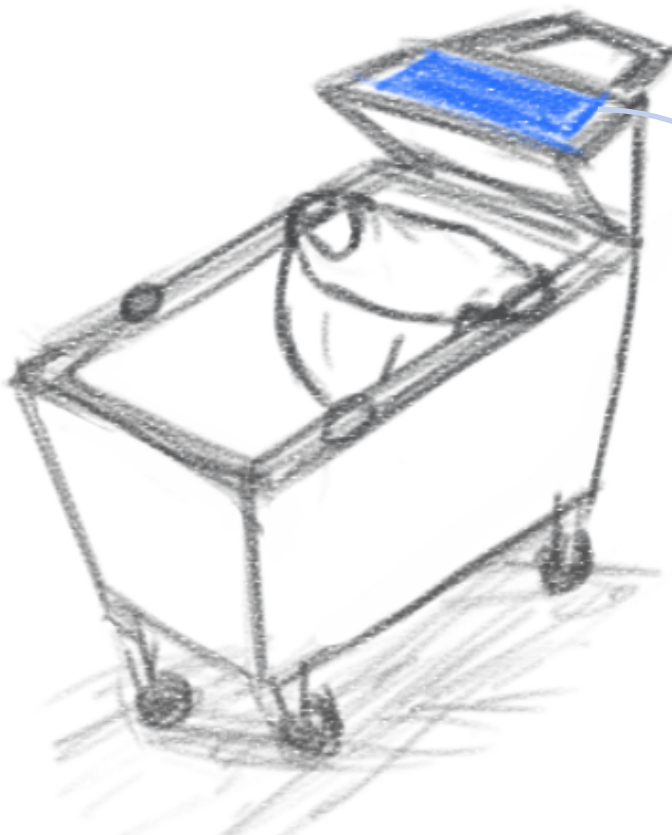
- Image barcode scanner
- Data transmitter
- Charging socket
- Weight sensor
- Screen
- Bluetooth sensor

5. Design Introduction

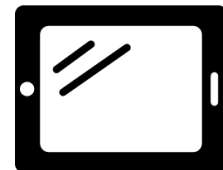
5.2. Applied Technologies and Features

① Cart

② Bag



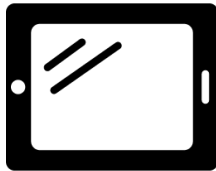
1) Screen



5. Design Introduction

5.2. Applied Technologies and Features

1) Screen



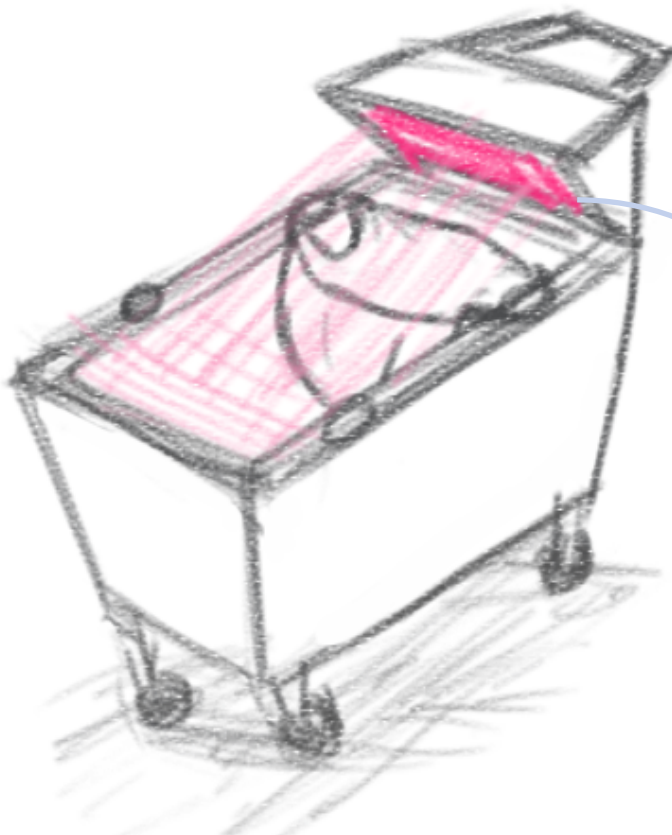
- ✓ attach on the front of the shopping cart's handle
- ✓ guide to where are products
- ✓ transmit shopping lists with the shopping bag
- ✓ provide discount information
- ✓ show information of products in the cart(price, name, expiration data etc.)
- ✓ notification on the removed products and cancel button
- ✓ notification weight measurement
- ✓ interpreter service
- ✓ button for calling staff

5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



2) Image barcode scanner



5. Design Introduction

5.2. Applied Technologies and Features

2) Image barcode scanner

Barcode using Digital Watermarking


Invisible watermark is embeded on the package


→ Barcode data is built in entire package of the product

The best solution today.
The only solution for tomorrow.

Digimarc delivers the best consumer barcode scanning experience, and the Discover Mobile SDK also enables your mobile app to scan imperceptible Digimarc Barcodes appearing in print, product packaging, audio and virtually any media. Be ready to scan them all.

▶ Watch the video and learn more



DIGIMARC | 

Invisible Barcode Packages

Now the product itself becomes a digital barcode.



Original Package Digimarc Enabled Package

5. Design Introduction

5.2. Applied Technologies and Features

2) Image barcode scanner



- ✓ to scan inside the cart entirely, install beneath the screen which is on top side of the cart
- ✓ read barcode data printed on the product's package
- ✓ transmit scanned information of products to the screen of the cart
- ✓ no need for user to scan products in person, just put them in the cart then scanning will be automatically done

5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



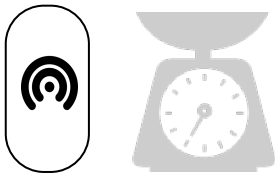
3) Weight sensor



5. Design Introduction

5.2. Applied Technologies and Features

3) Weight sensor



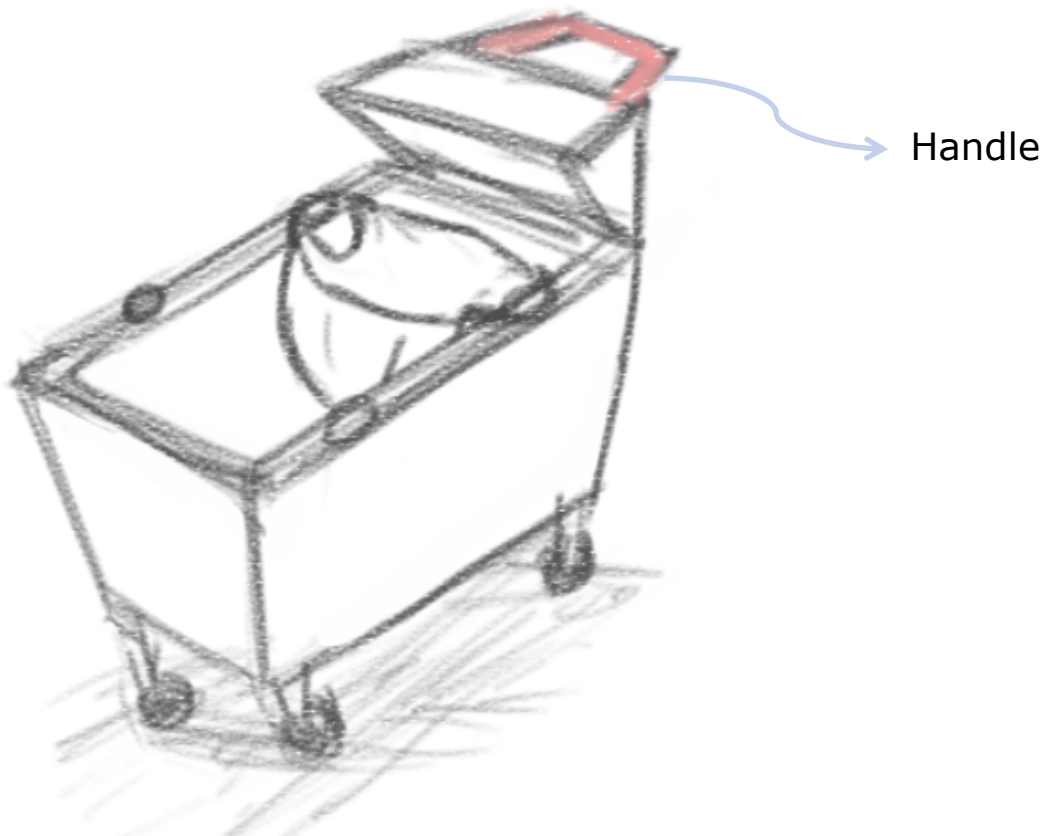
- ✓ installed on the upper side which the shopping bag will be hang on
- ✓ sensing weight when products are put in and transmit information to the screen
- ✓ before payment, compare the written information from the scanner and weight information
- ✓ if two data correspond, make a payment

5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



5) Charging socket



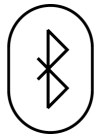
4) Bluetooth sensor



5. Design Introduction

5.2. Applied Technologies and Features

4) Bluetooth sensor



- ✓ transmit information to shopping bag : weight, lists, payment etc.
- ✓ receive information of locations in the market and product's discount information

5) Charging socket



- ✓ charging socket is set up on the loop between shopping carts when they are stayed
- ✓ charging automatically when carts are locked and stand by

5. Design Introduction

5.2. Applied Technologies and Features

① Cart

② Bag



5. Design Introduction

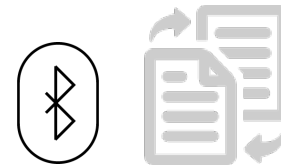
5.2. Applied Technologies and Features

① Cart

② Bag



1) Data transmitter

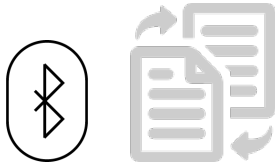


5. Design Introduction

5.2. Applied Technologies and Features

1) Data transmitter

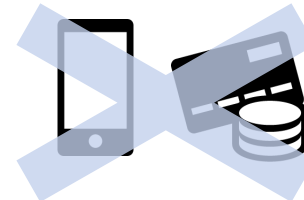
: sensor



- ✓ weight data
- ✓ list data
- ✓ payment data

→ store credit card info

→ no need smartphone, credit card or cash



6. Video Prototyping

Reduce the **process of moving multiple times**
for easy shopping

**Quick
shopping**

**Smart
shopping**

storing shopping lists in the shopping bag
shopping cart and bag transmit information each other

cart **guides where are products** I should buy
By smartphone, **get the location** of products
and **information of discount or coupon**

6. Video Prototyping

Both shopping cart and bag are IoT

NO need SMART PHONE

NO CREDIT CARD or CASH



6. Video Prototyping

2015. 12. 15. 산학연구실습

김민아 한재홍

마트에서 장보기 과정

Ver.
Smart shopping Cart
Smart shopping Bag



**Smart
shopping CART
shopping BAG**

