

# Smart Cart

2018-1 IT Intensive 2, Ajou Univ



201320988 김현정

201321026 김치현

201420978 이정필

201620560 신정호

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# Introduce

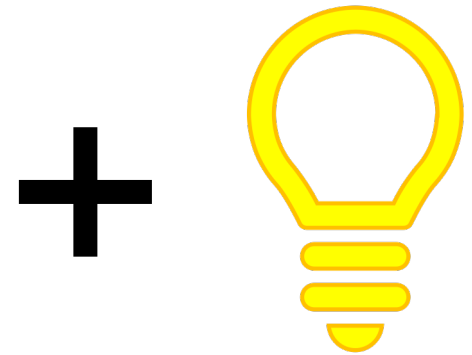
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# Introduce

Q. 원하는 물품의 위치  
Q. 현재 카트에 담긴 물건들의 가격  
+ 카트 끌기 힘들다



Idea

기존 마트

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# Purpose

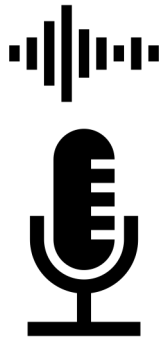
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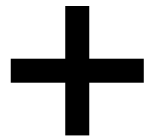
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# Purpose

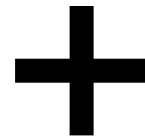
## Smart Cart



음성인식



자율주행



자동 계산 및 안전 주행

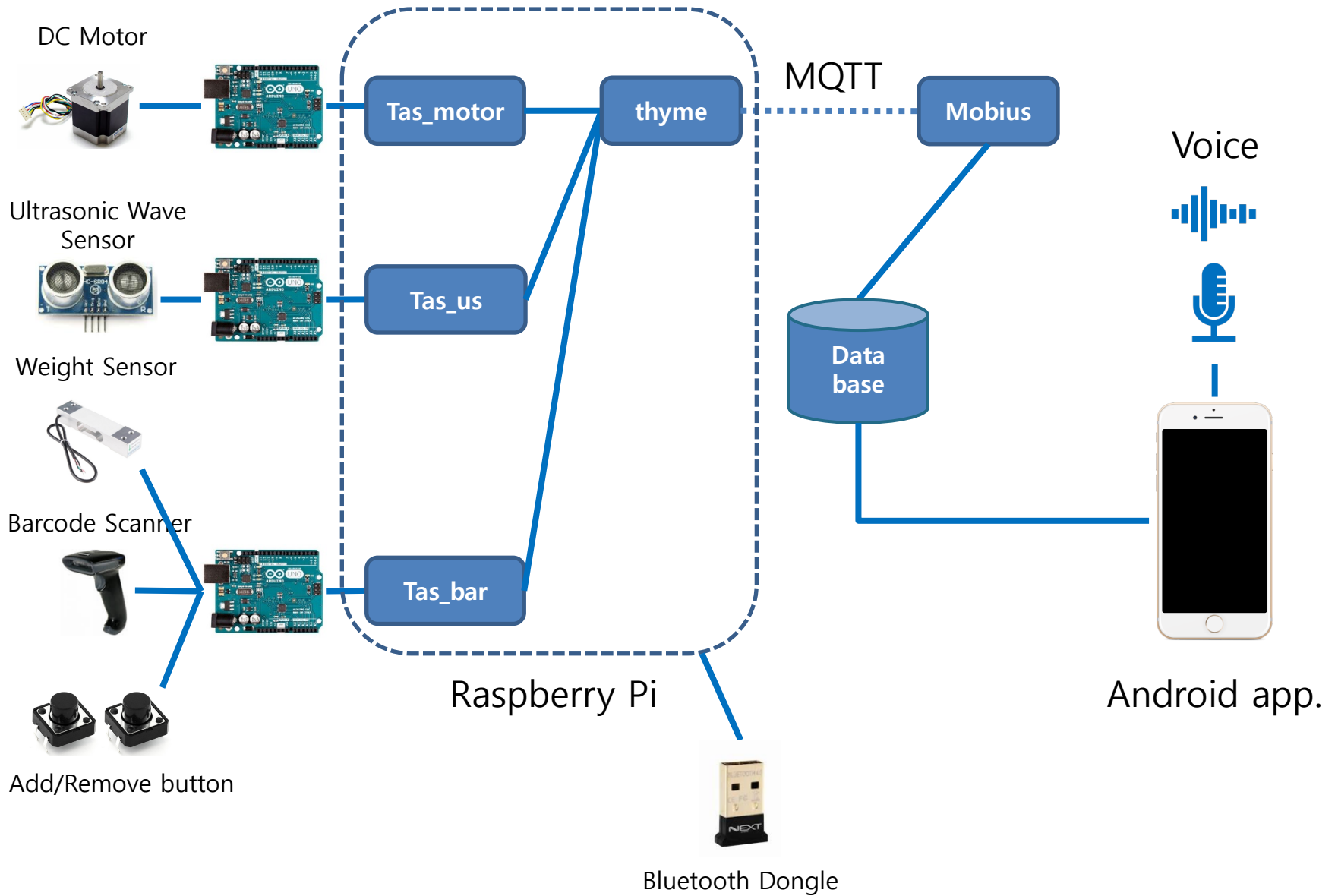
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# System Configuration

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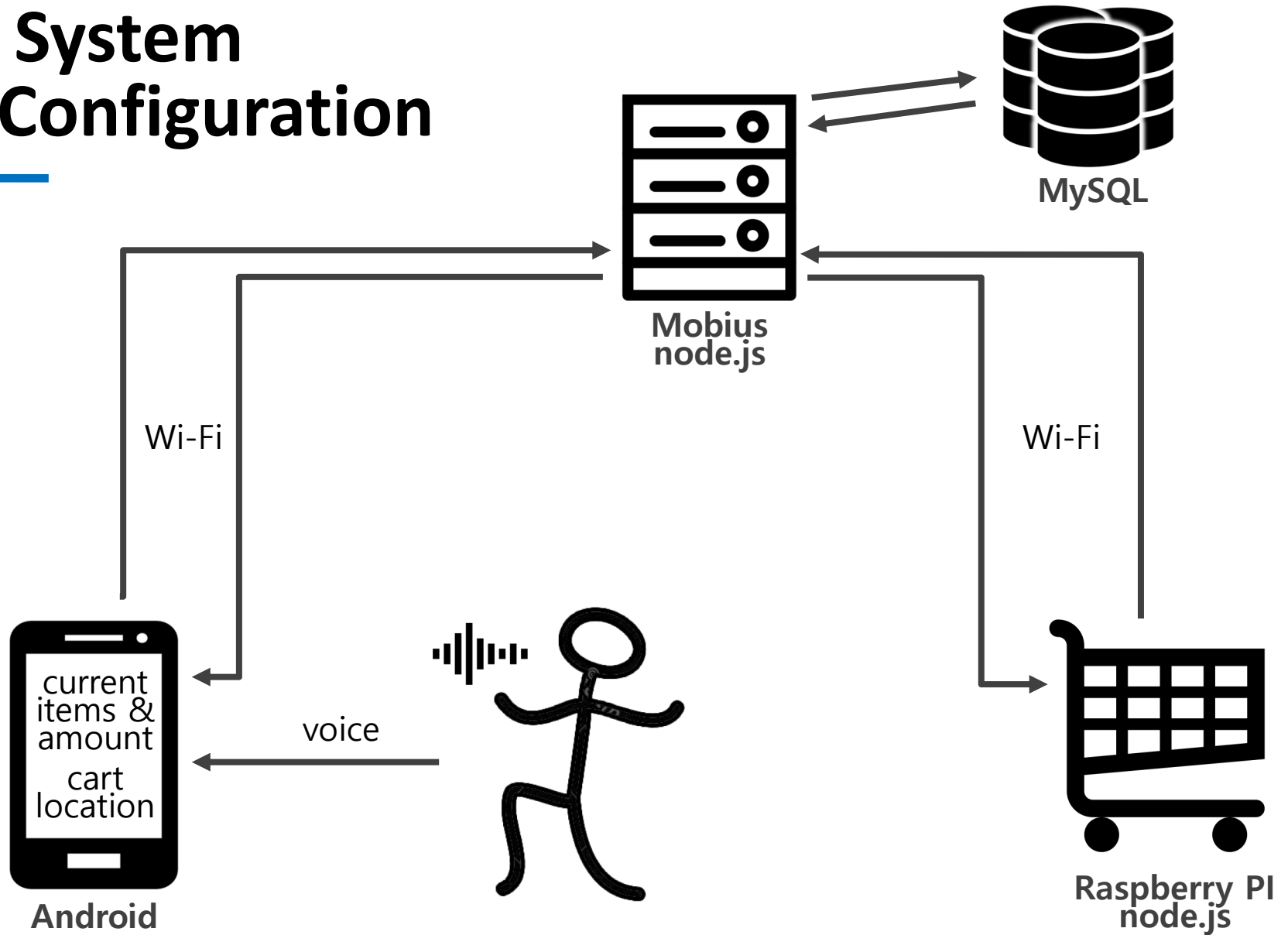
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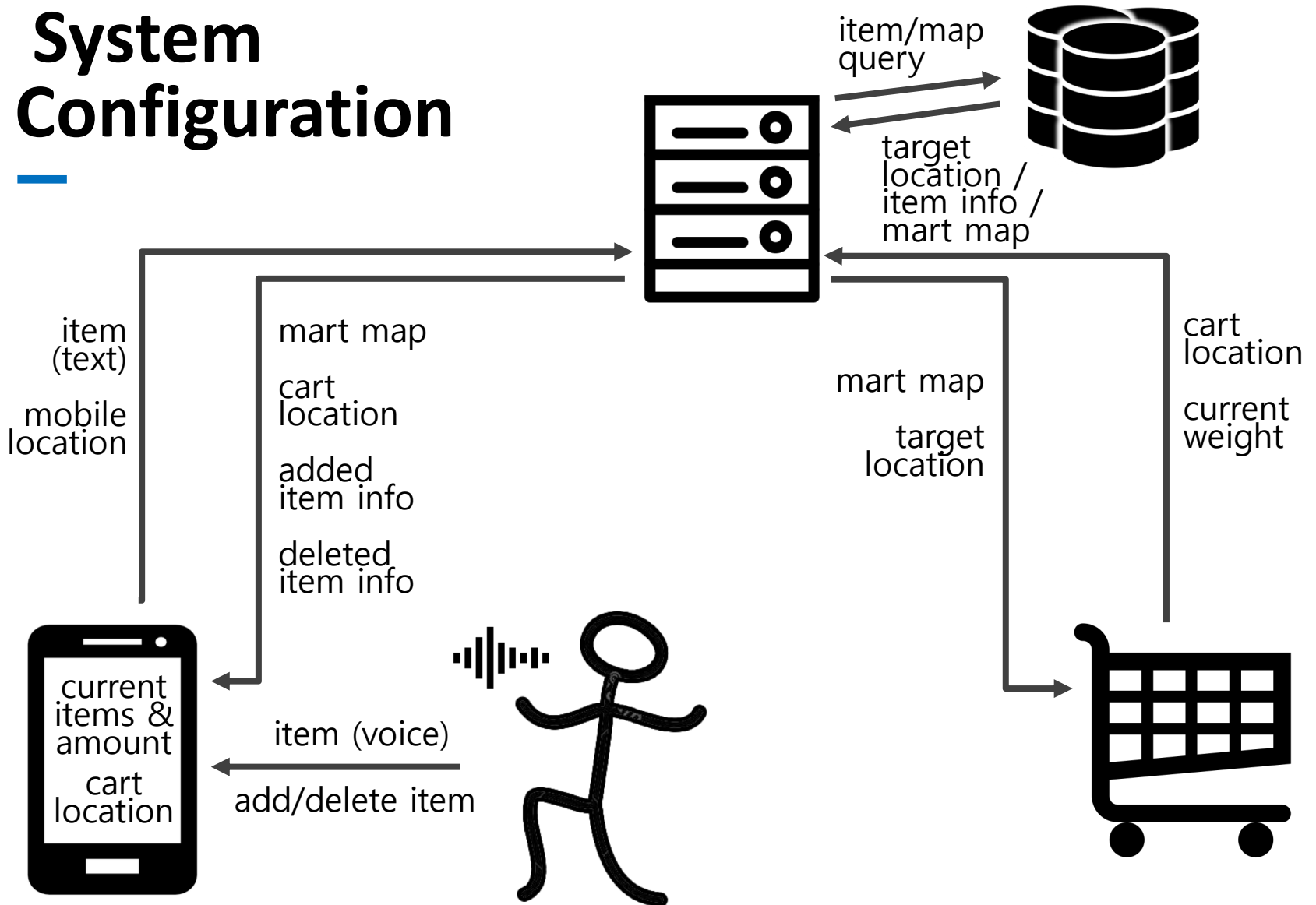
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# System Configuration



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# System Configuration



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# Used Tech.

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# 관련 기존연구

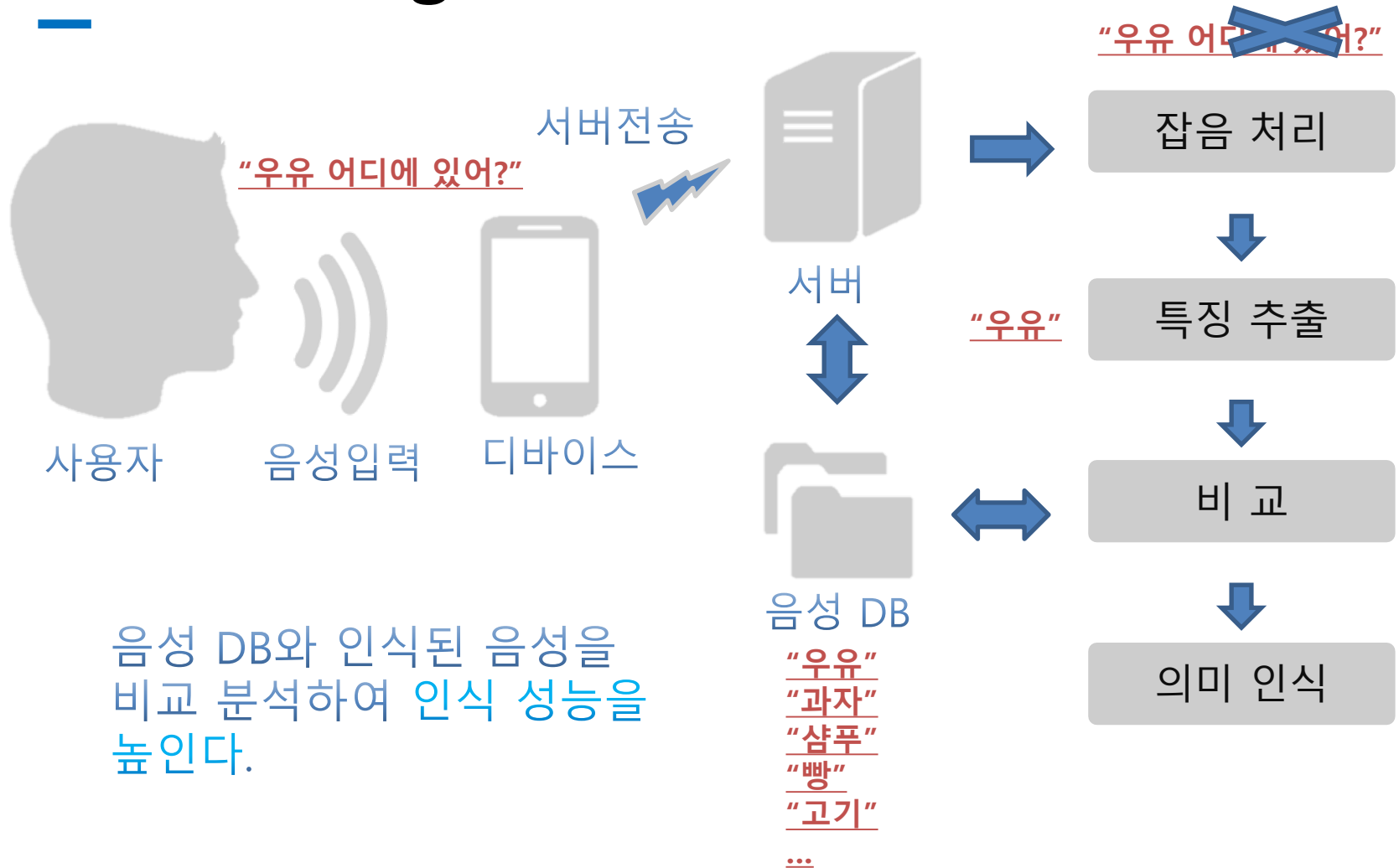


스마트 카트 "일라이"

1. 음성인식 기능과 사람을 인식할 수 있는 센서를 통해 상품이 있는 자리로 소비자를 안내하거나 일정 거리를 두고 따라다닐 수 있음
2. 카트 내 LCD 화면을 통해 전단상품 등 쇼핑정보를 안내 받을 수 있음  
(추가로 쇼핑 소요 시간과 혜택, 주차 위치 등 정보 제공)
3. 바코드 인식 센서와 무게 감지 센서를 통해 상품을 고른 즉시 바코드를 읽은 후 추후 카드를 통해 결제할 수 있음
4. 카트를 반납할 필요 없이 쇼핑이 끝나면 스스로 움직여 충전소로 복귀
5. 휴대폰 유무선 충전도 가능

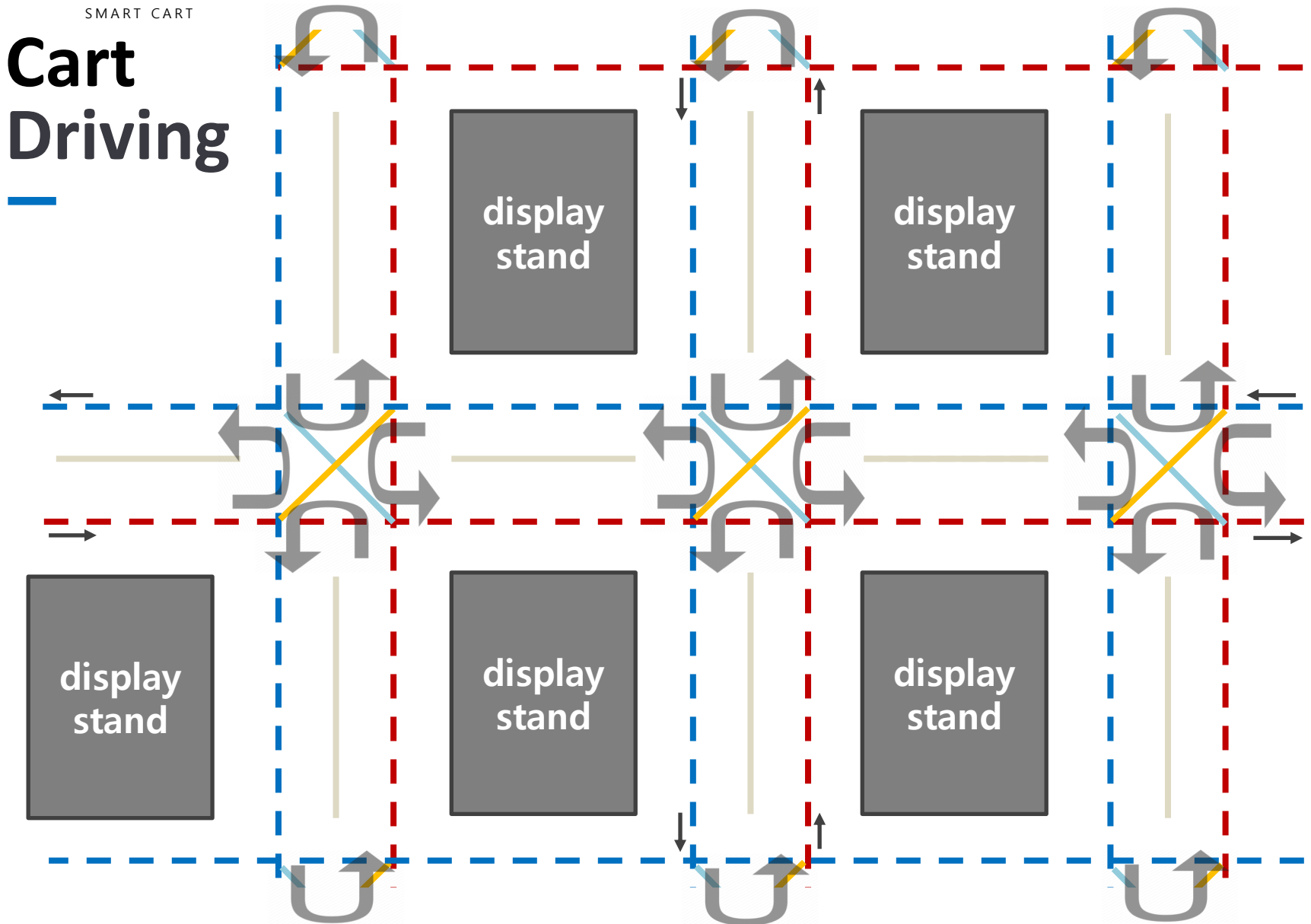
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# Voice Recognition



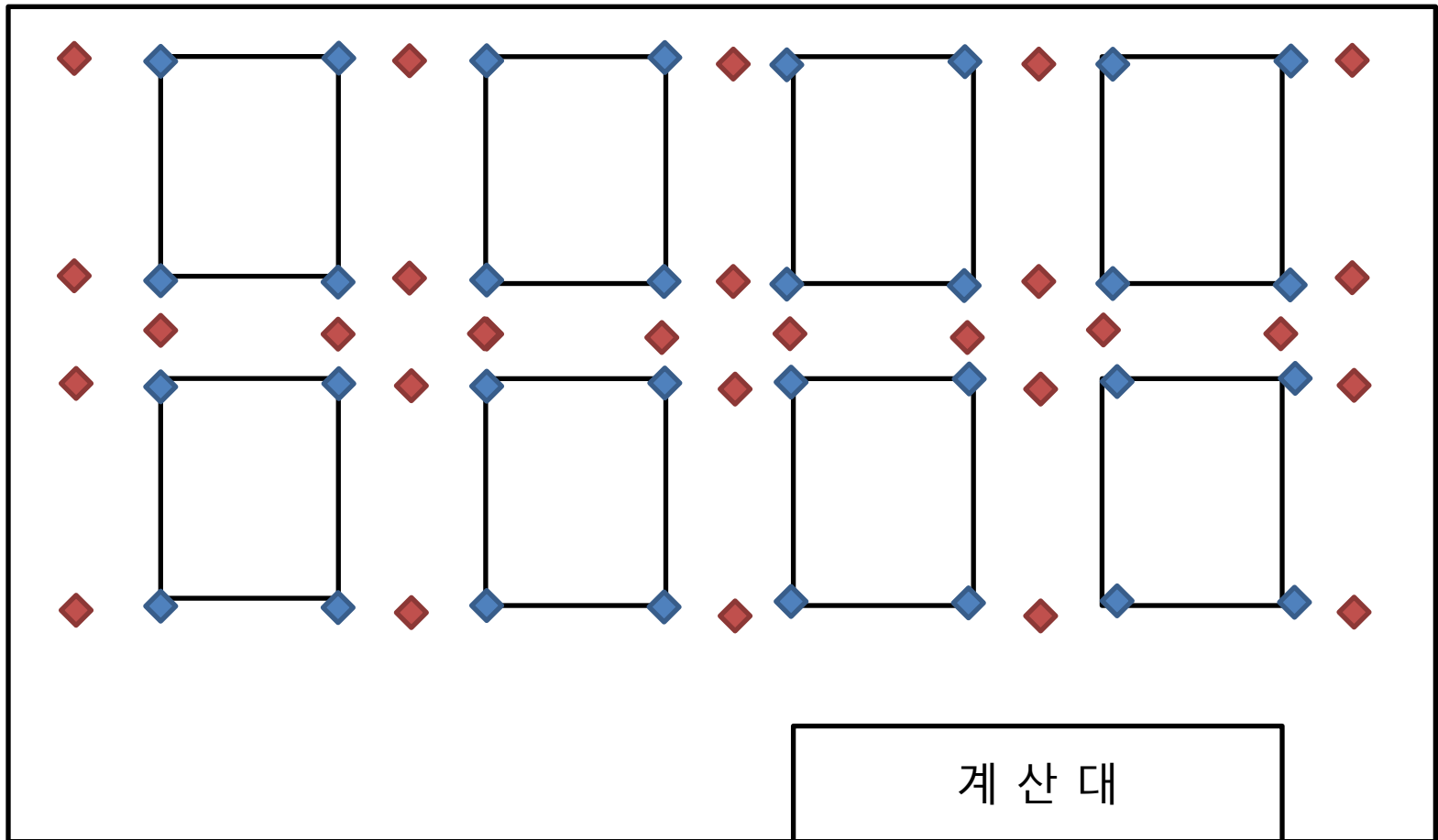
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# Cart Driving



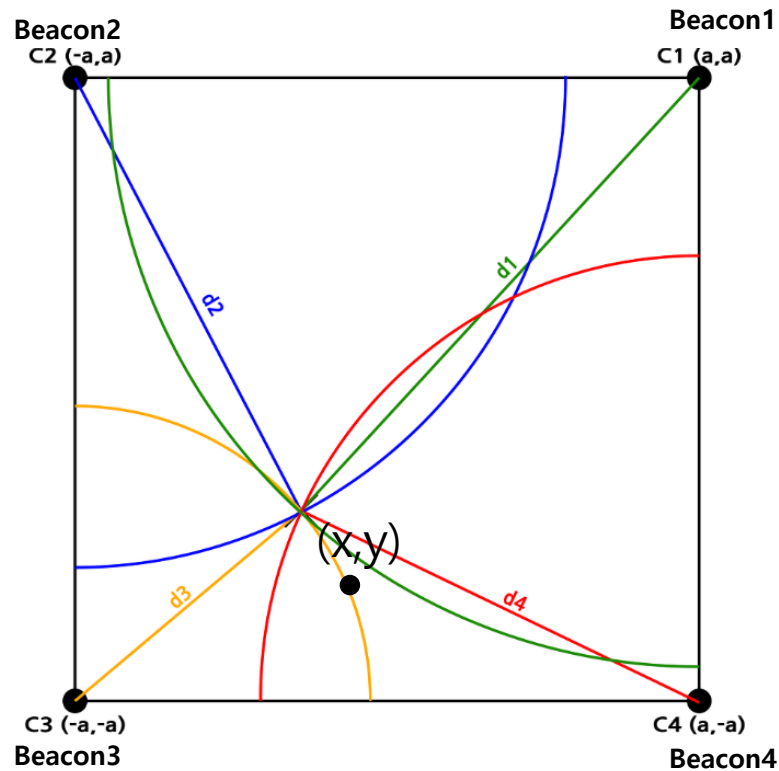
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# Location Finding



◆ : BEACON    ◆ : RFID

# Compute Coordinate



## IndoorGPS

- 고정되어 있는 각 Beacon 과의 거리를 측정하여 상대적인 현재 위치를 알아내는 위치인식 방법

<https://github.com/N00D13/IndoorGPS>

$$x = \frac{d_4^2 - d_3^2 + r^2}{2r} = \frac{d_2^2 - d_1^2 + r^2}{2r}$$

$$y = \frac{d_3^2 - d_1^2 + r^2}{2r} = \frac{d_4^2 - d_2^2 + r^2}{2r}$$



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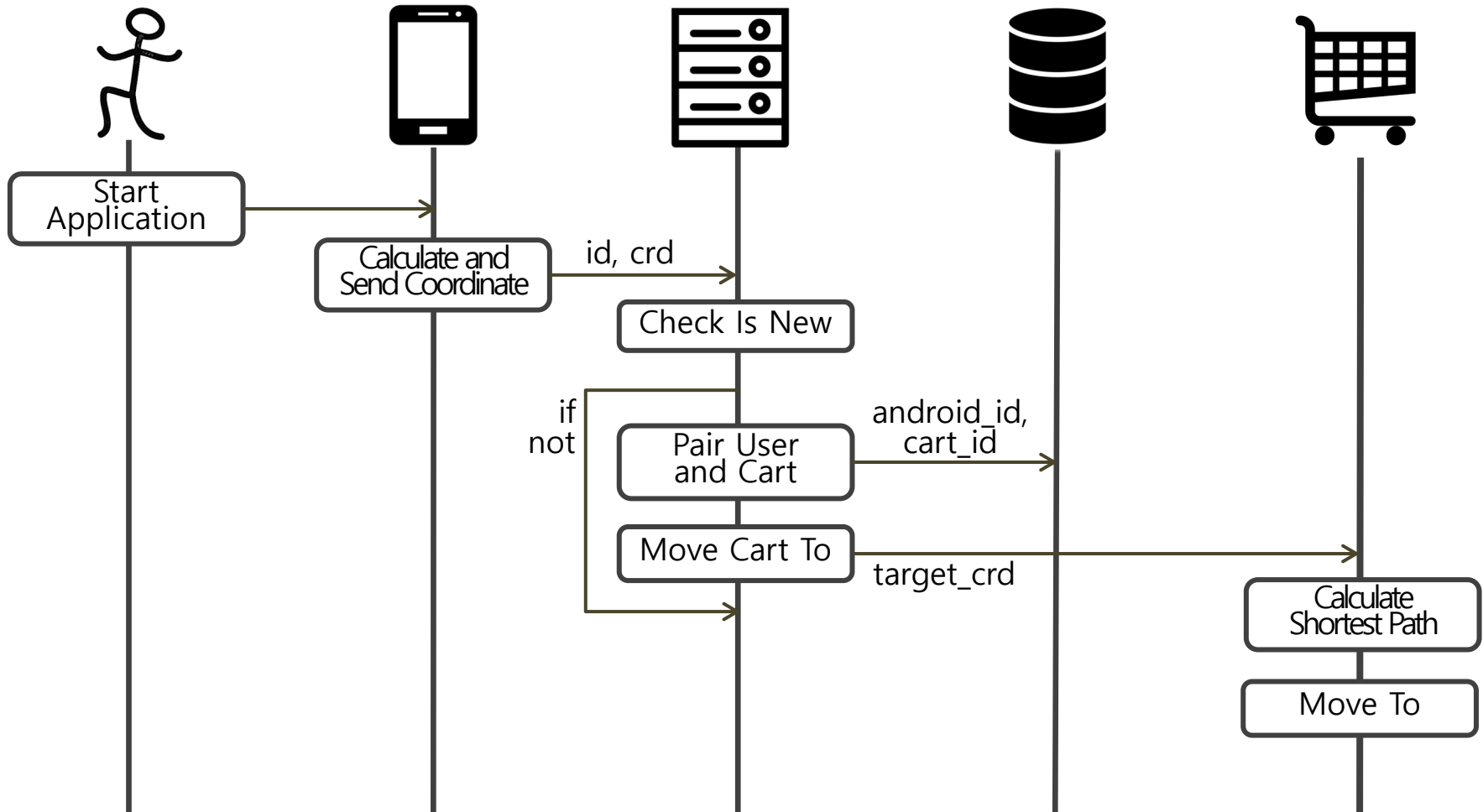
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# UseCases

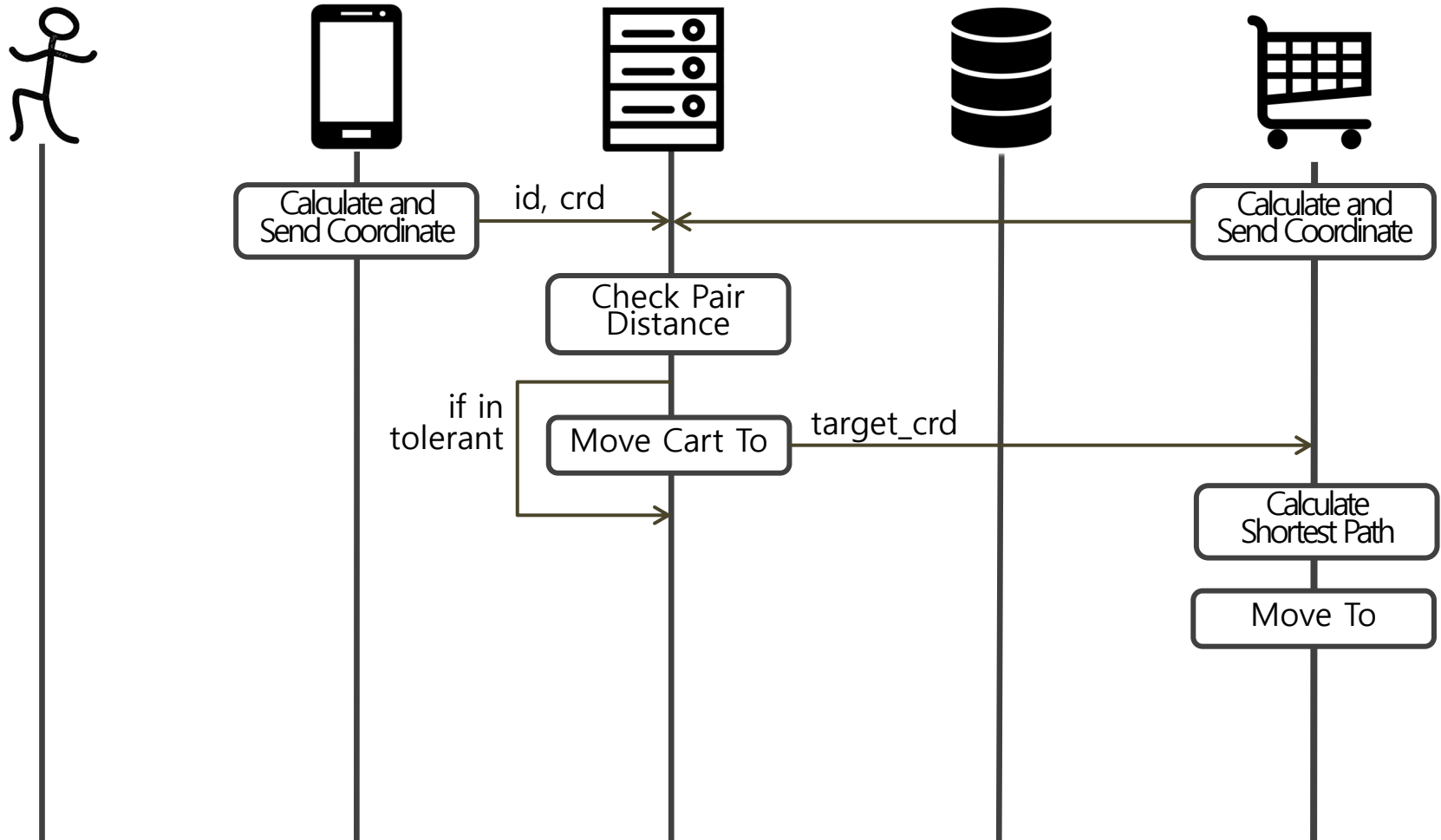
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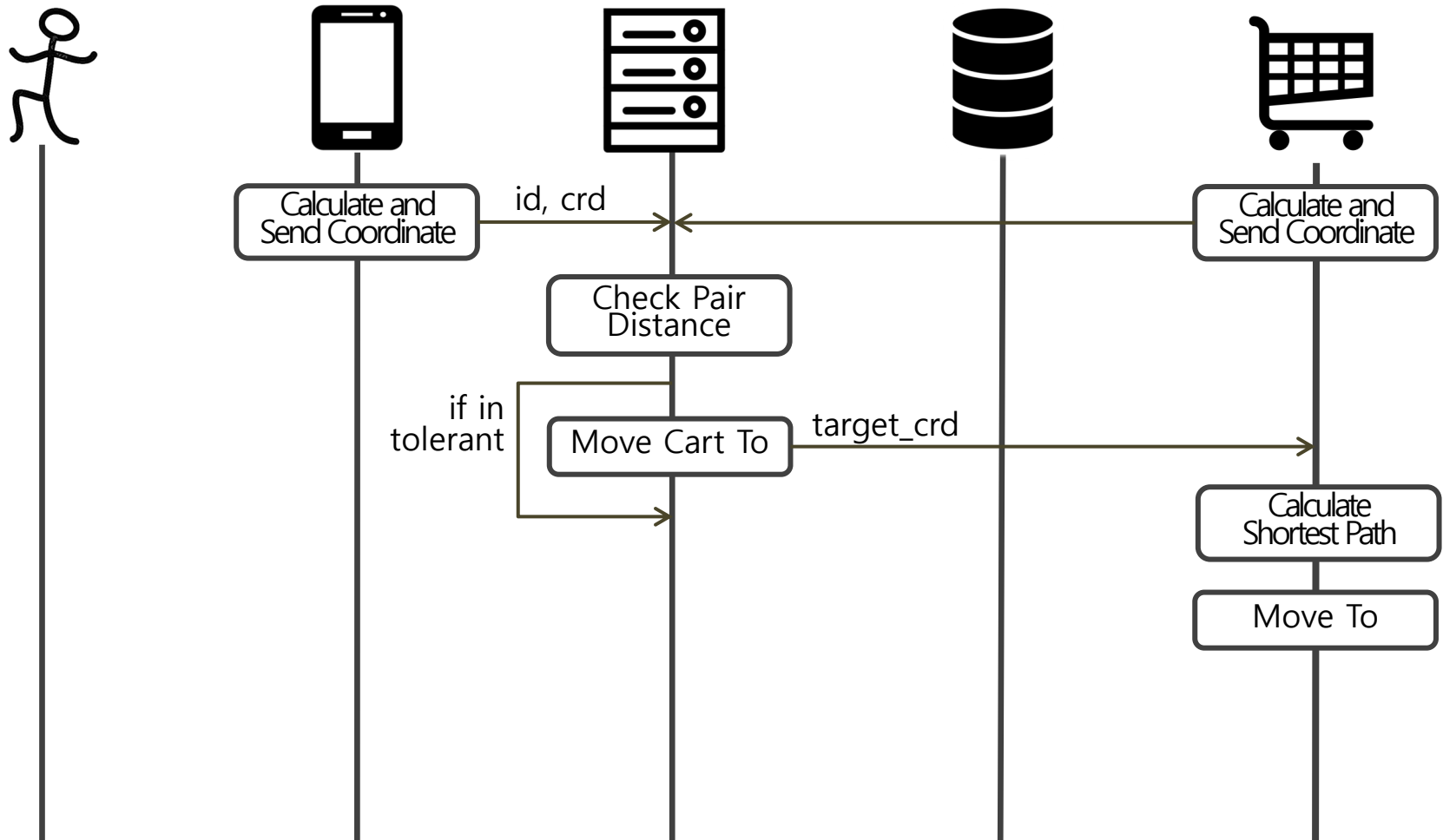
# 1. Greet User



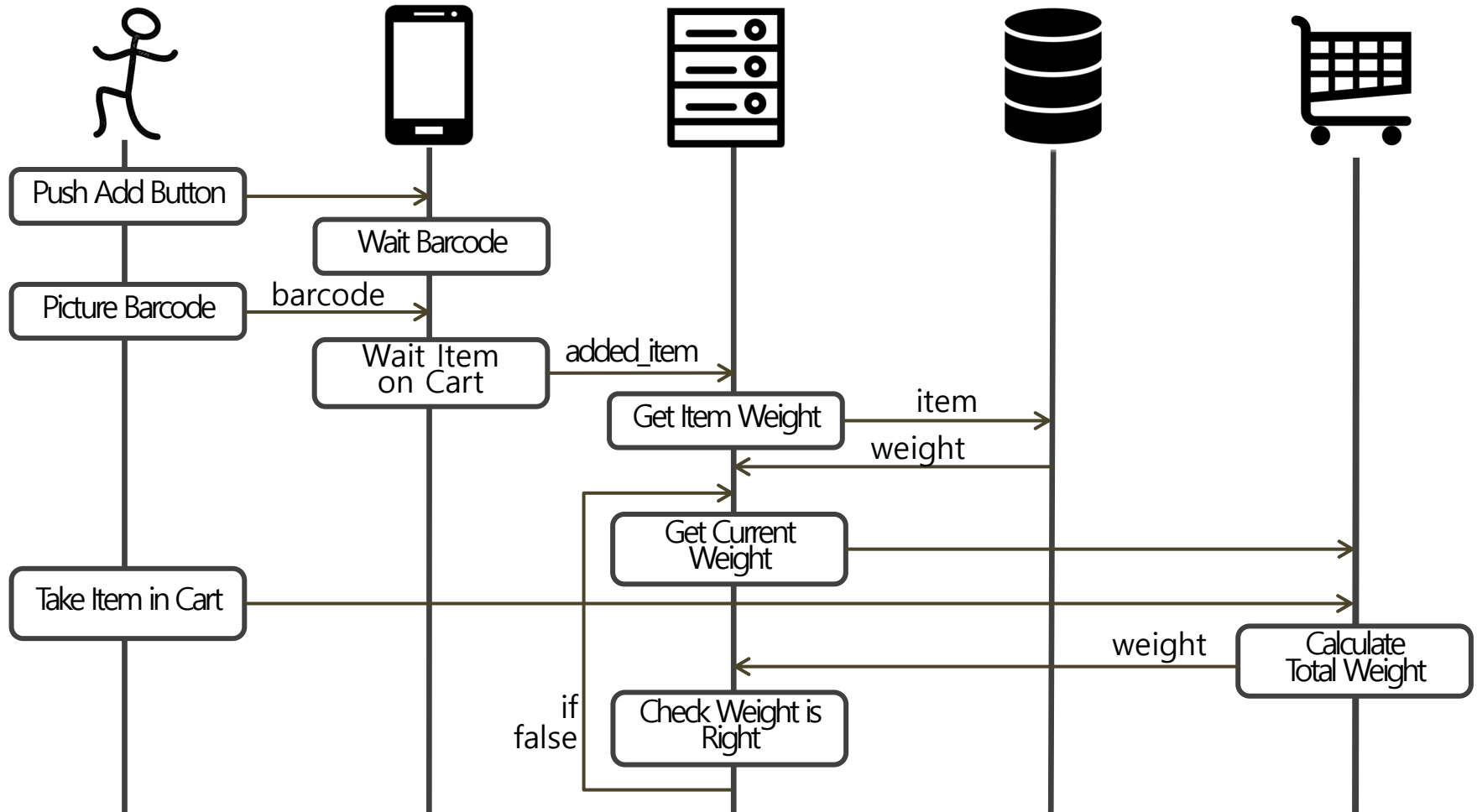
## 2. Track User

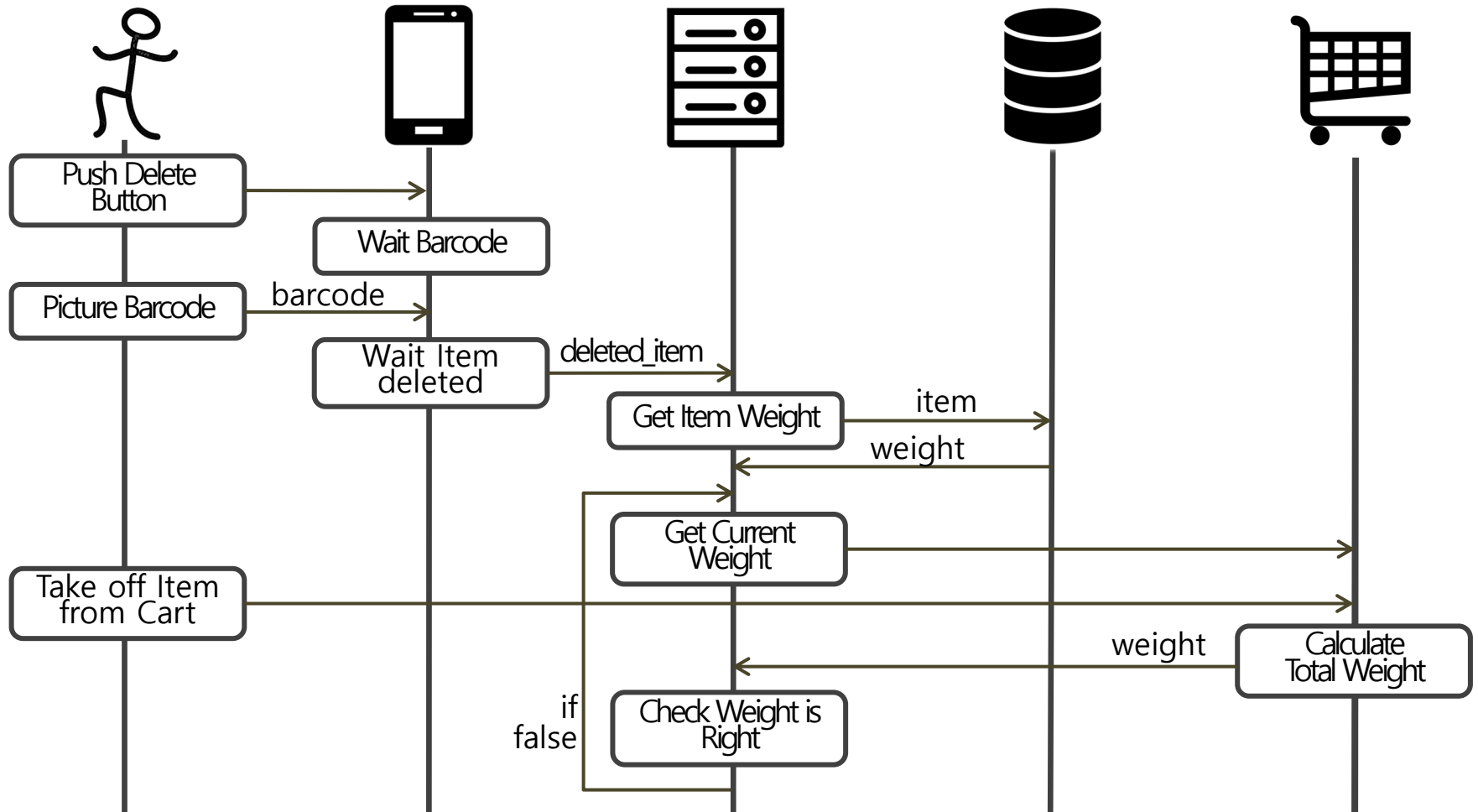


# 3. Find Item



## 4. Select Item





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# Q&A

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THANKS