



# Spherical Home Robot - **Ballbot**

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■ Ballbot

# Requirement of Home Robot



**Proscenic 790T**

Housework



**Kuri**

Accompany



**Rokid**

Entertainment



**BB8**

High-Intelligence

# Why choose Spherical Robot



**Flexibility of Movement - eg. Sphero**  
**Friendly to family members**  
**Friendly to home environment**

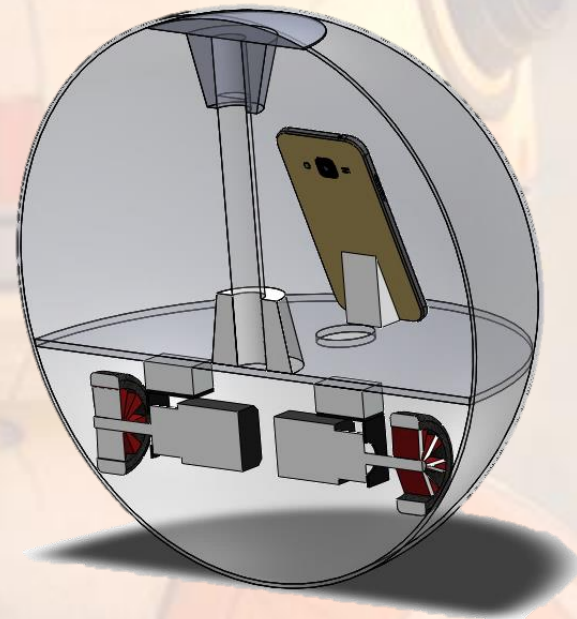
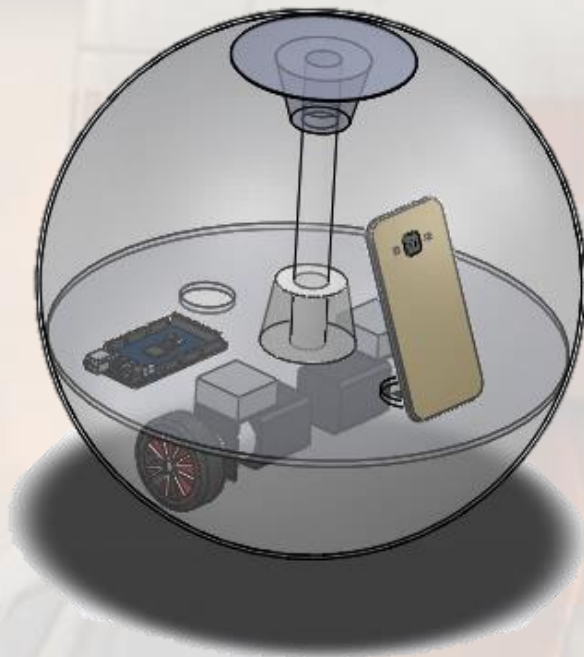


# Features of Ballbot



# Features of Ballbot

- Automatic movement with accurate control
  - Movement of Existing Spherical Robots is under the manual control



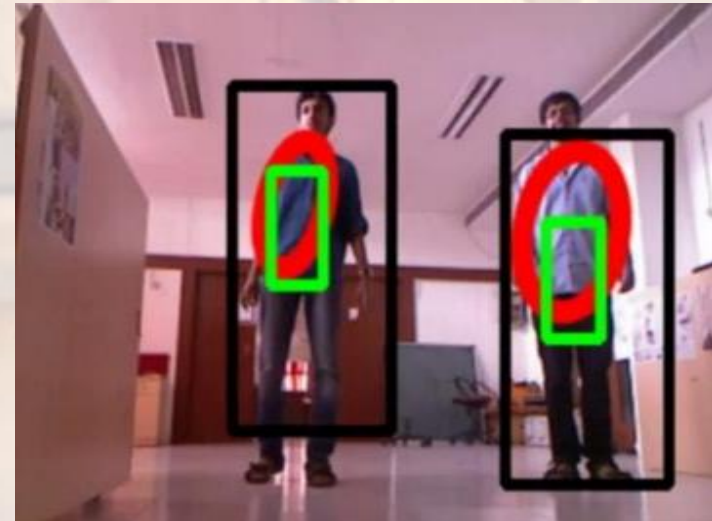
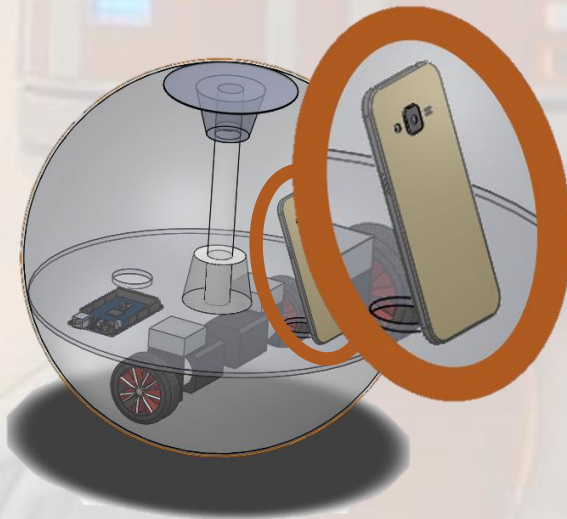
# Features of Ballbot

## ● Object Tracking

-- Accompany in practice, follow the movement of particular person

To monitor the home environment

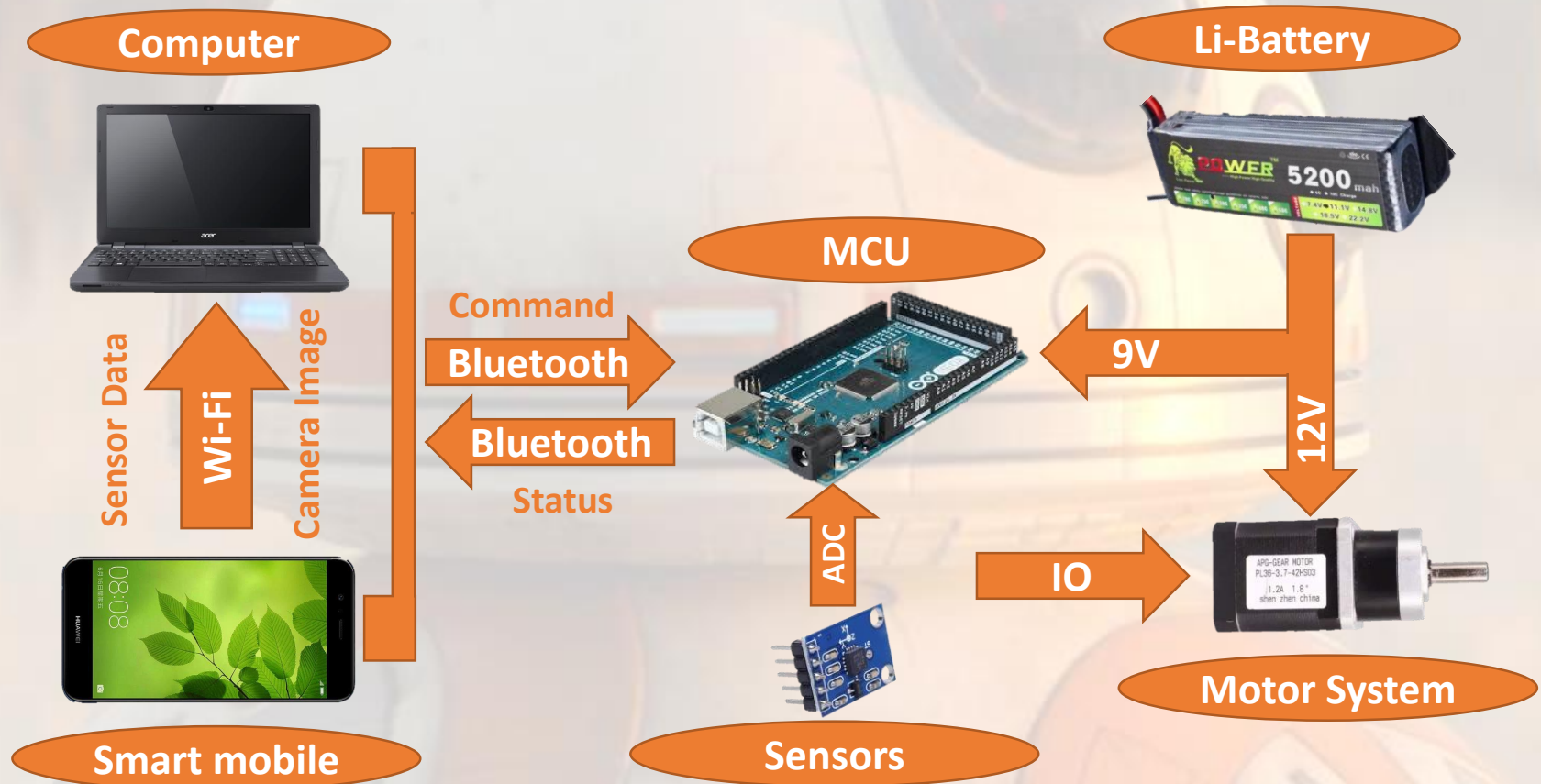
For the sake of safety of the young or the pet at home





# System Design of Ballbot

## ● Interconnection of Components

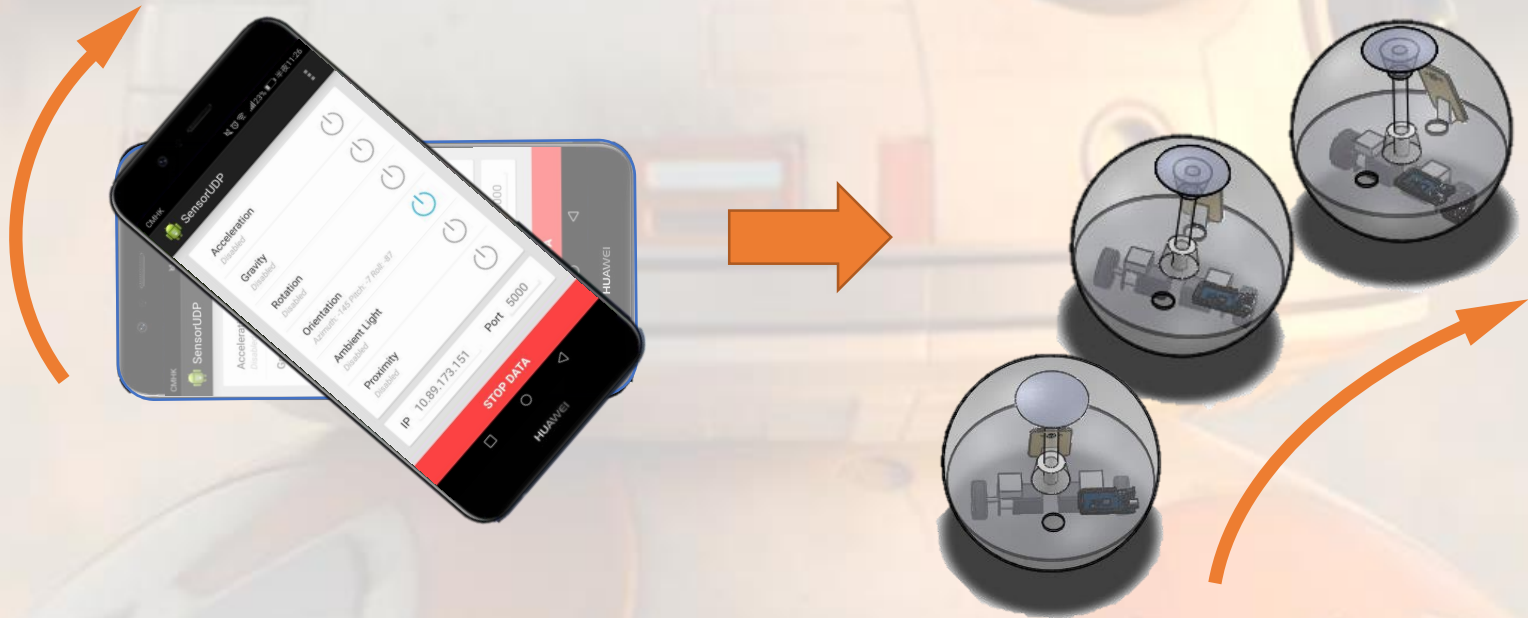




# User Interface of Ballbot

## ● Mobile Control

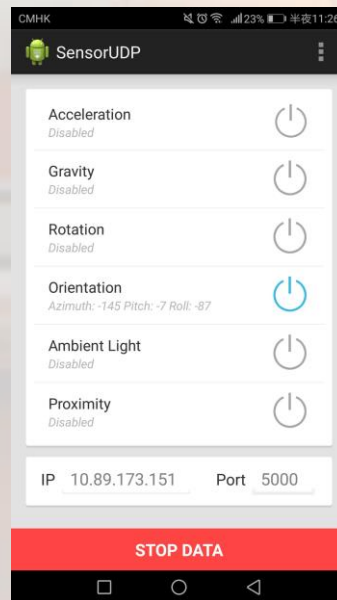
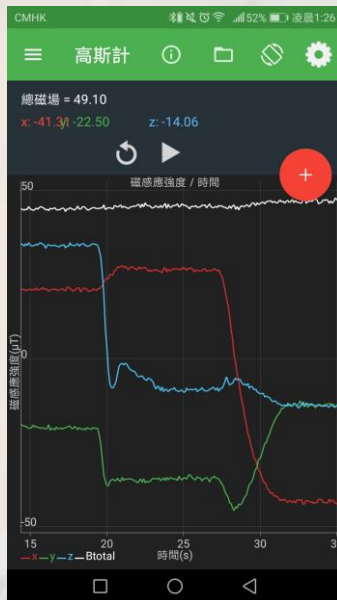
-- Two Independent Interfaces on Android for Ballbot



# User Interface of Ballbot

## ● Mobile Control

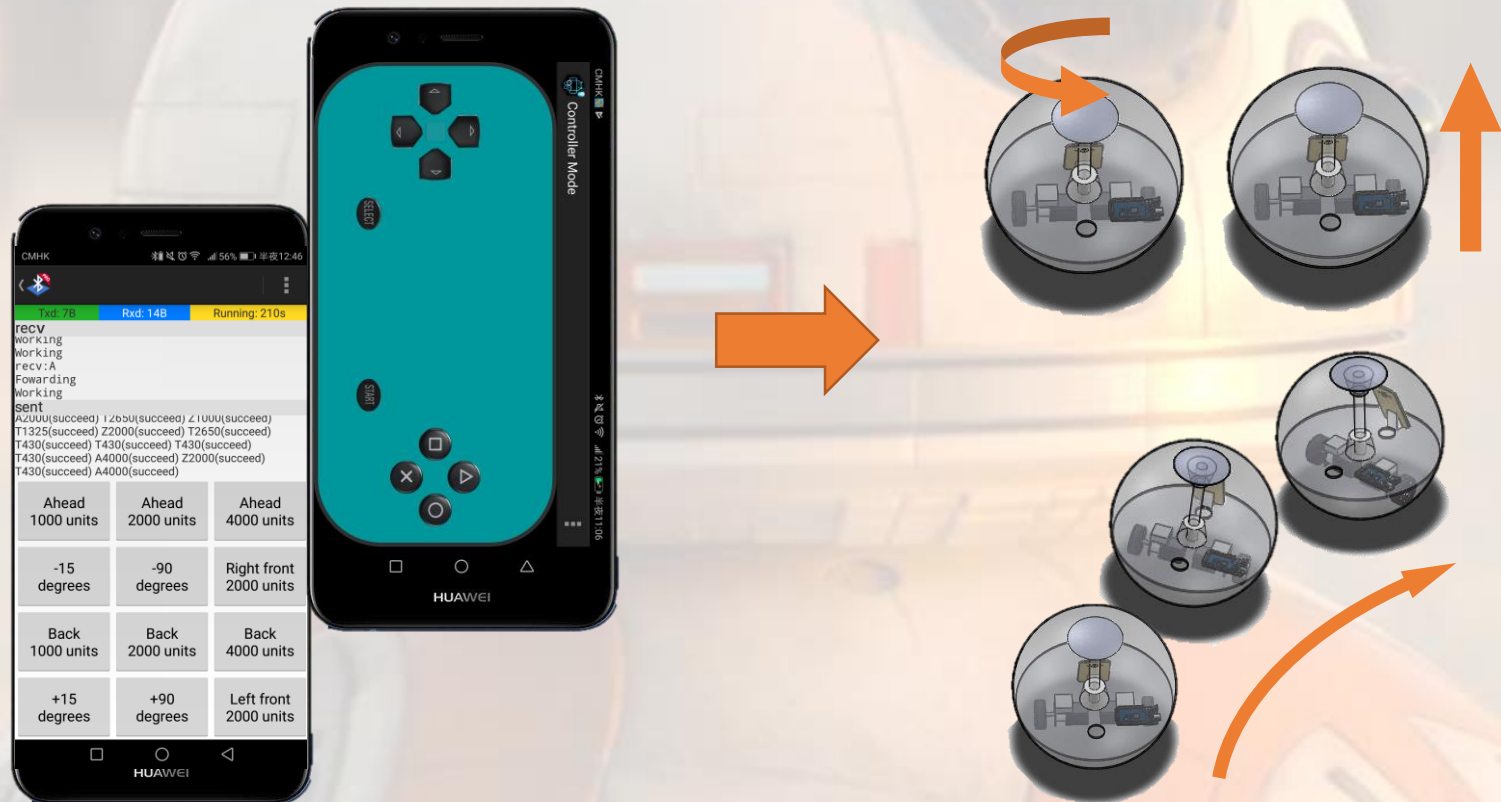
-- Two Independent Interfaces on Android for Ballbot



# Control Interface of Ballbot

## ● Mobile Control

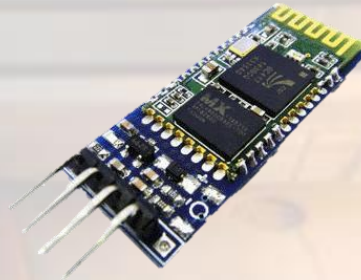
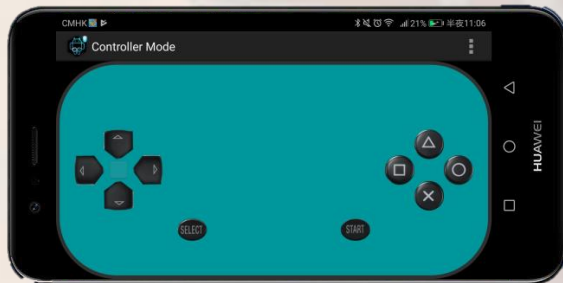
-- Two Independent Interfaces on Android for Ballbot



# Control Interface of Ballbot

## ● Mobile Control

-- Two Independent Interfaces on Android for Ballbot

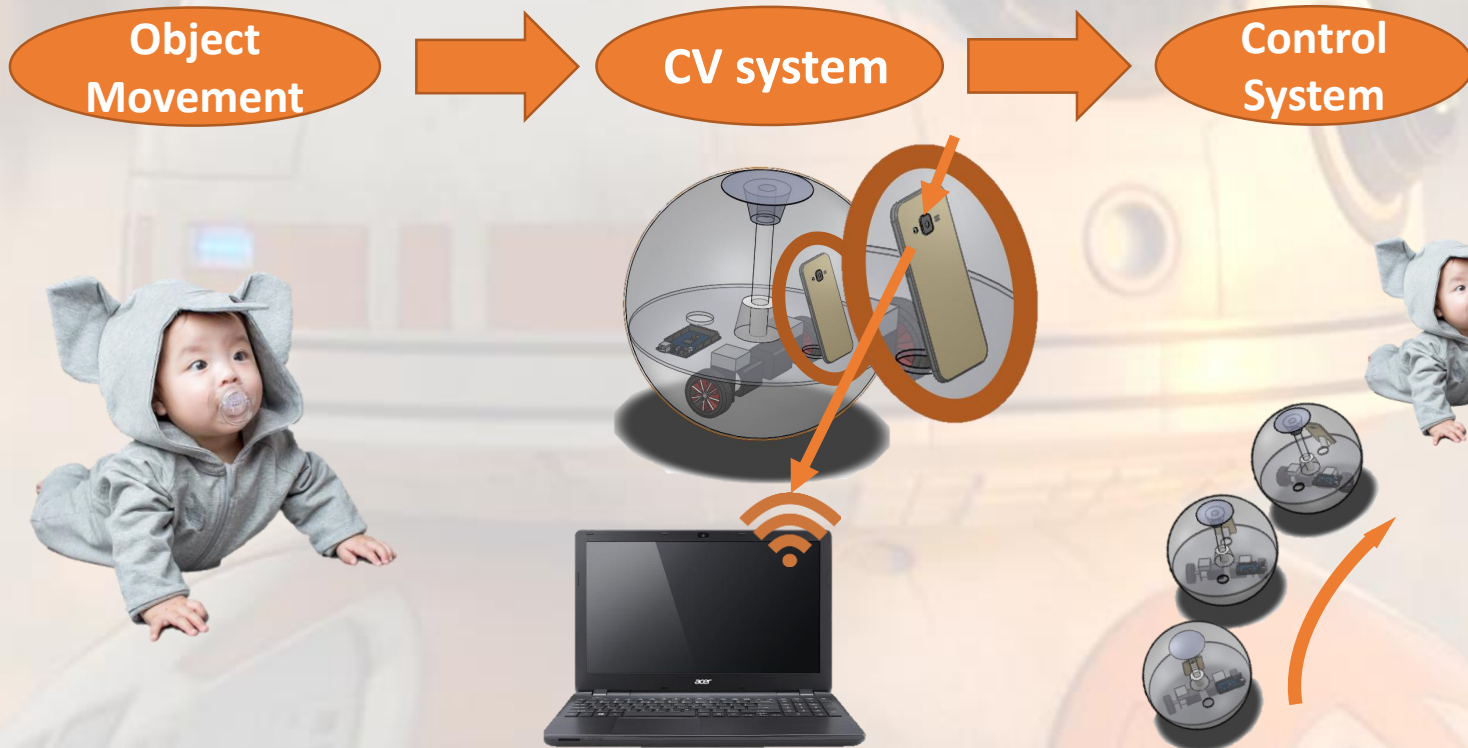




# Control Interface of Ballbot

## ● Object Recognition and Tracking

-- Following the Particular Person



# Control Interface of Ballbot

## ● Object Recognition and Tracking

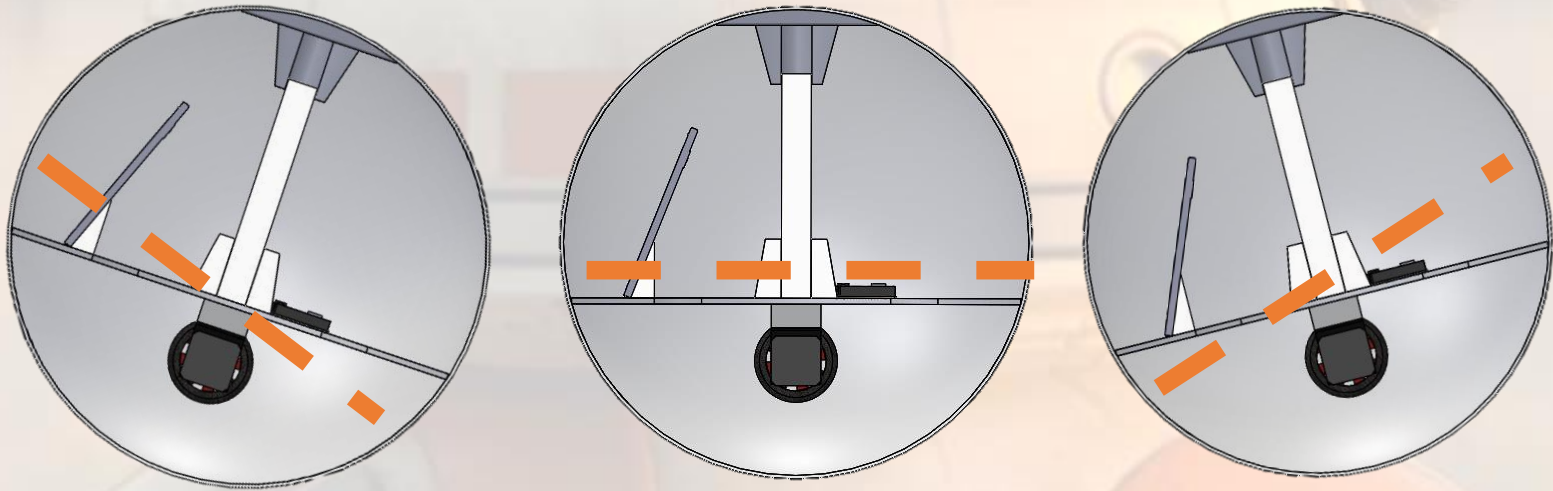
-- Following the Particular Person



# Implementation of Ballbot

- Keep the platform inside leveled

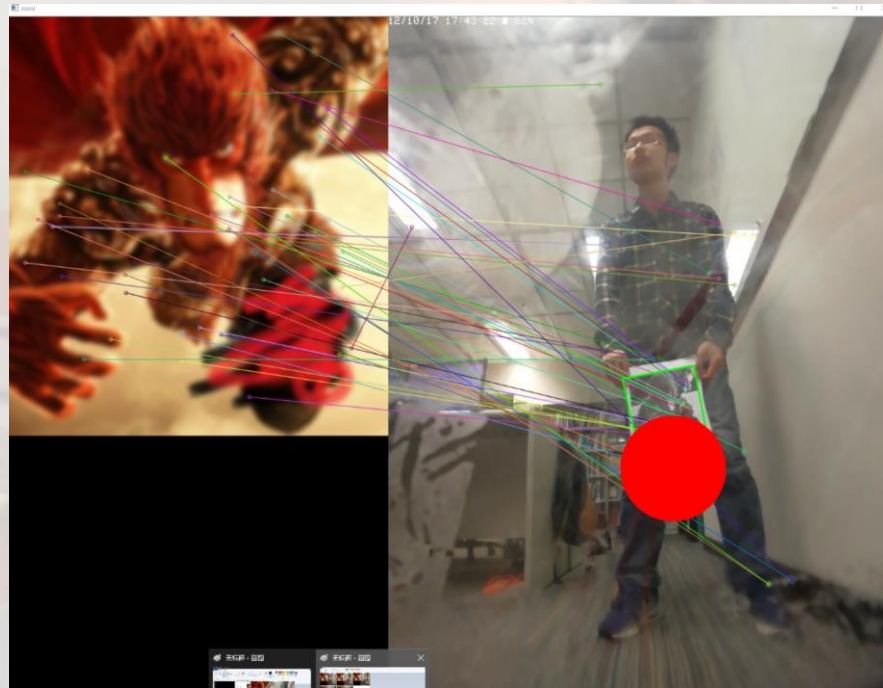
- Gravity Acceleration Sensor + PID
- Different References for Different Movement



# Implementation of Ballbot

## ● Object Tracking

-- SURF – based on keypoints in the image

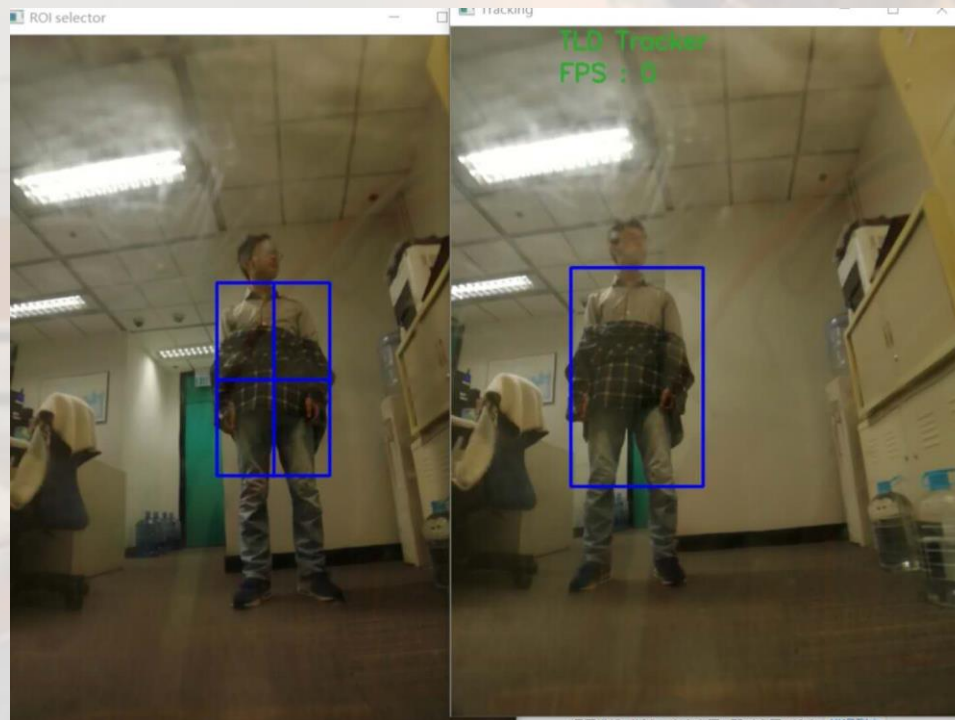




# Implementation of Ballbot

## ● Object Tracking

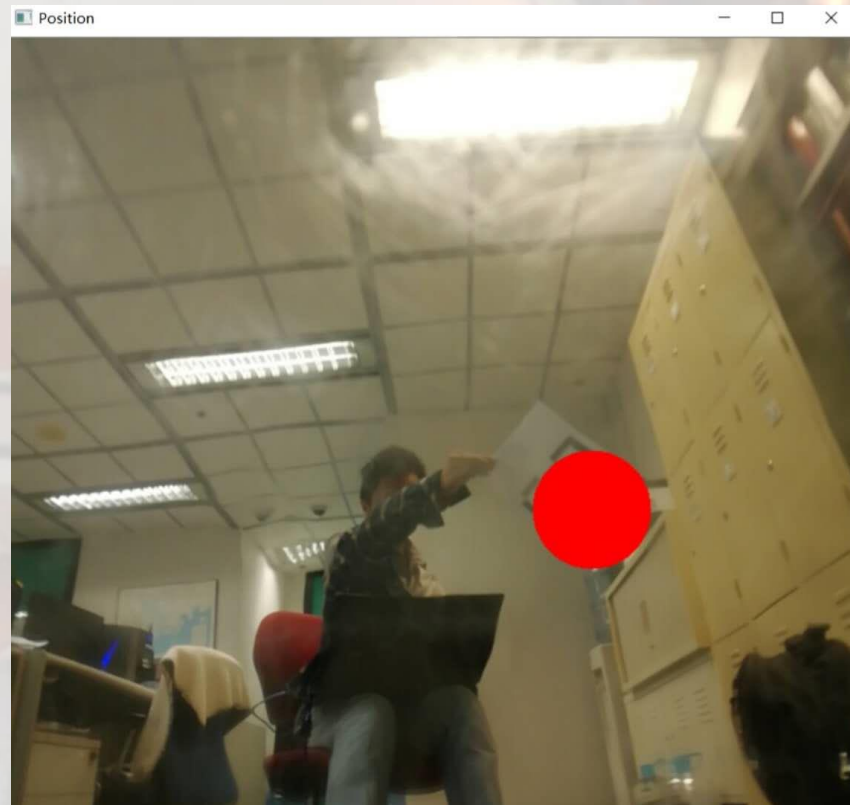
-- Tracking and Learning Detection – CNN



# Implementation of Ballbot

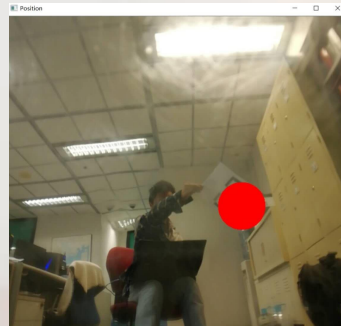
## ● Object Tracking

-- QR CODE

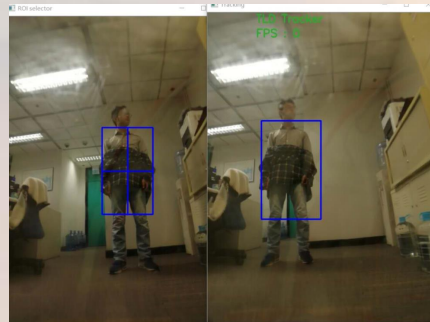


# DEMO and Some Videos of Ballbot

- Tracing QR code:  
<https://youtu.be/fH1DRGBHf4k>



- Tracing People:  
<https://www.youtube.com/watch?v=3ZY-2NT1Dvw>



# Ballbot

Thanks!  
Q&A

