

A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. Some nodes are highlighted with blue circles, and others with blue dots.

# Design


# Posture Fixer

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A decorative network diagram in the bottom-right corner, featuring a complex web of interconnected nodes and lines. Some nodes are highlighted with blue circles, and others with blue dots.



# Plan

- ◎ Introduction
  - ◎ High-Level Design
  - ◎ Communication
  - ◎ Architecture
  - ◎ How it works
  - ◎ Plans
- 

# Introduction



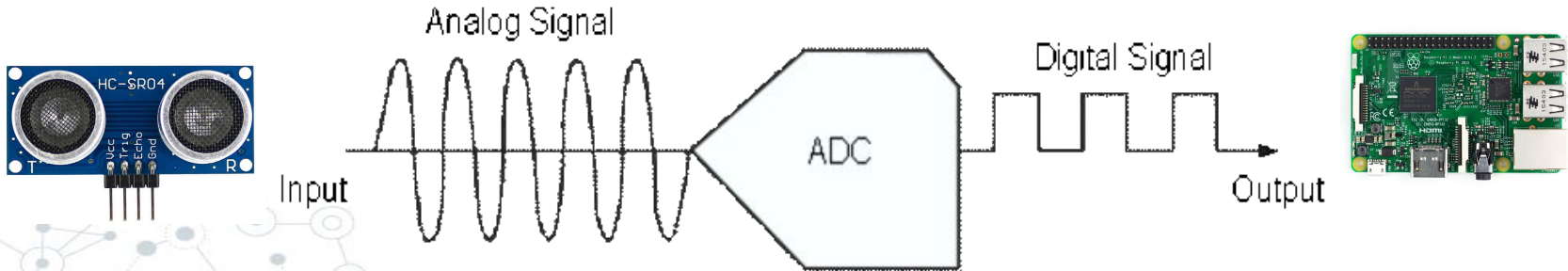
- ◎ Many people sit in a bad posture for a long time.
- ◎ It makes people's spine tense much.
- ◎ So, we will make "Posture Fixer", that can detect if the user is sitting in a bad posture, and if so, send an alert to his smartphone.

A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. The nodes are represented by small circles, some of which are highlighted with a double-circle outline. The lines are thin and gray, creating a mesh-like structure.

# High level design

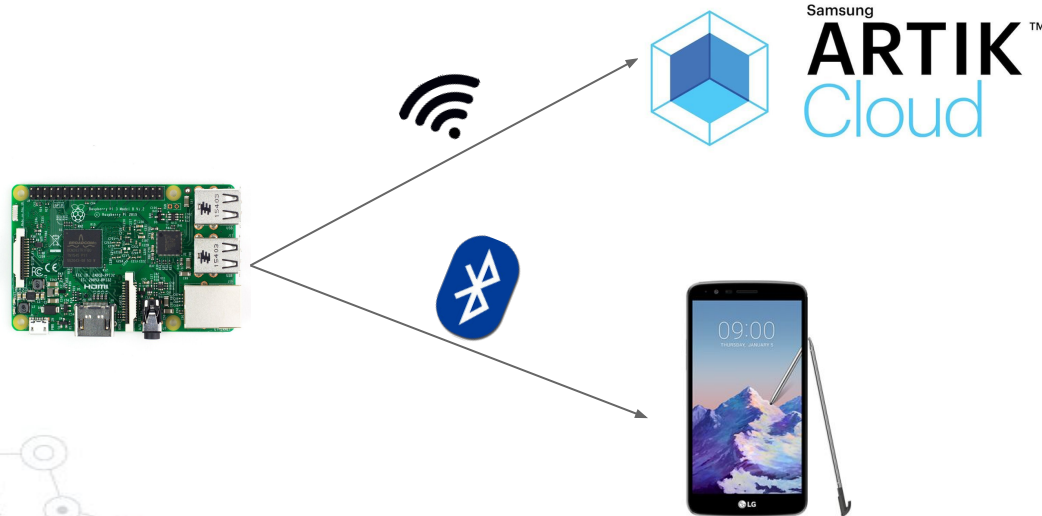
## Raspberry PI

- ◎ Analog sonar sensor data is polled by raspberry PI periodically (5 minutes)
- ◎ Analog data gets converted to digital data through an analog-to-digital converter



## Raspberry PI

- ◎ Data is then sent over to the cloud for storage
- ◎ Data is also sent to phone over bluetooth/wifi



## Smartphone APP

### Inclination :

- ◎ Calculate inclination
- ◎ Detect and inform user when inclination is wrong

### Statistics :

- ◎ Ask for statistics to the Cloud
- ◎ Convert this data into graph

## Smartphone APP

### Interface :

- ◎ Enable user to start/stop application
- ◎ Provides statistics of user's posture history
- ◎ Provides guidelines to user
- ◎ Gives suggestion to the user to fix his previous bad position



## Smartphone APP

Communication :

- ⊙ Does the link between a specific user and raspberry and Cloud



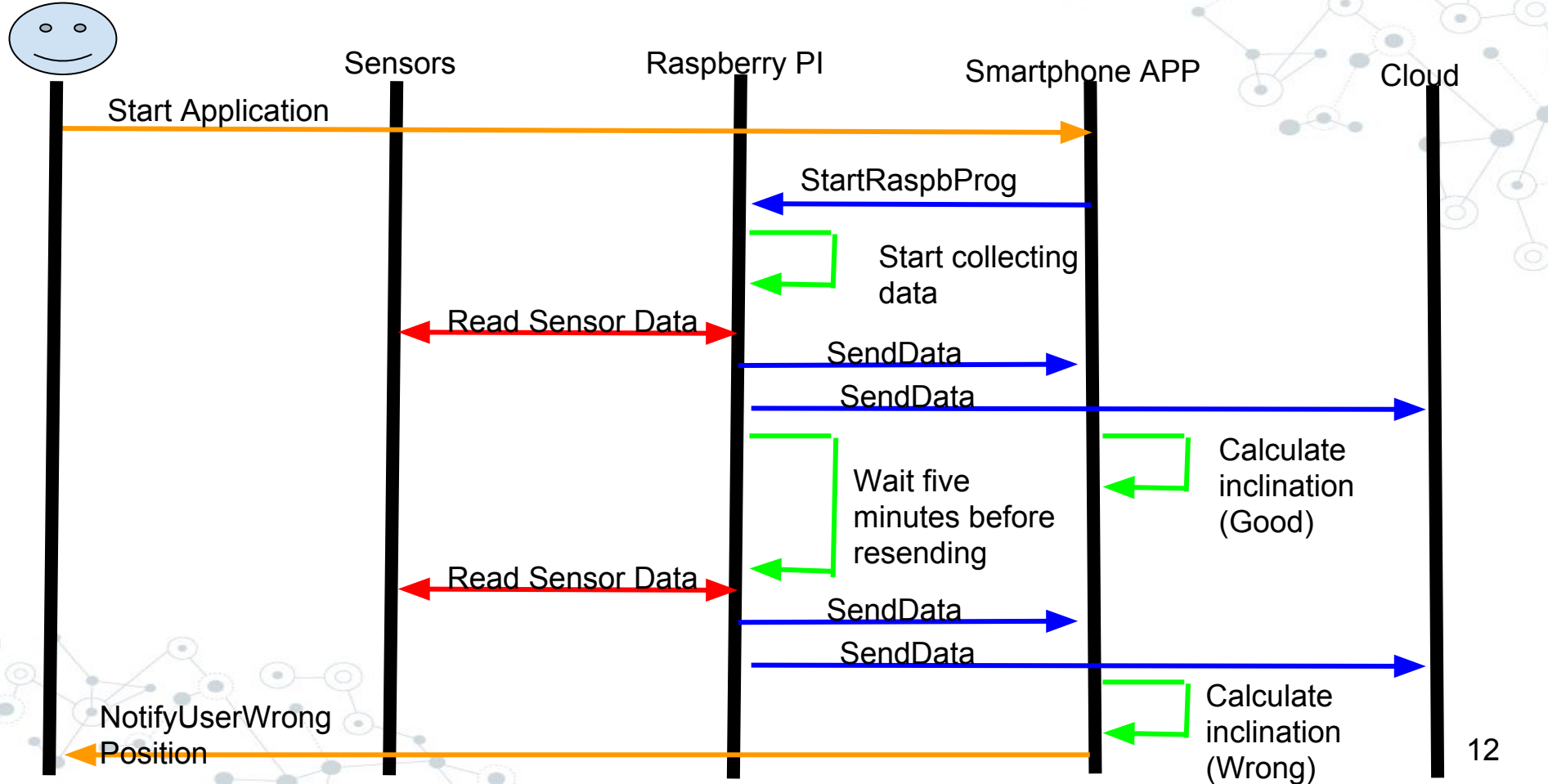
## Cloud

- ③ Used as database, collect every data
- ③ Gives user long-term statistics
- ③ Can support multiple users

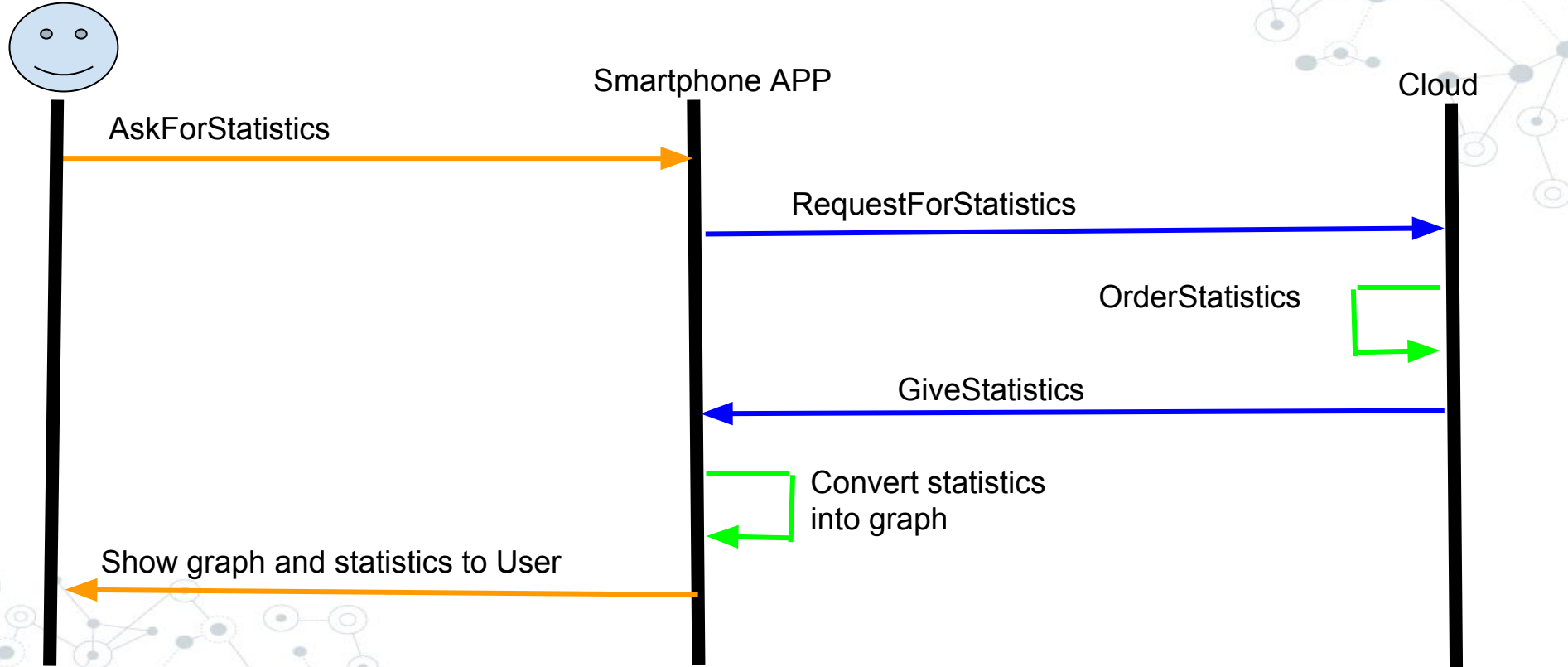
A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. The nodes are represented by small circles, some of which are double-lined, and the connections are thin grey lines. The diagram is partially cut off by the left edge of the slide.

# Communication

# Communication with sensor Part



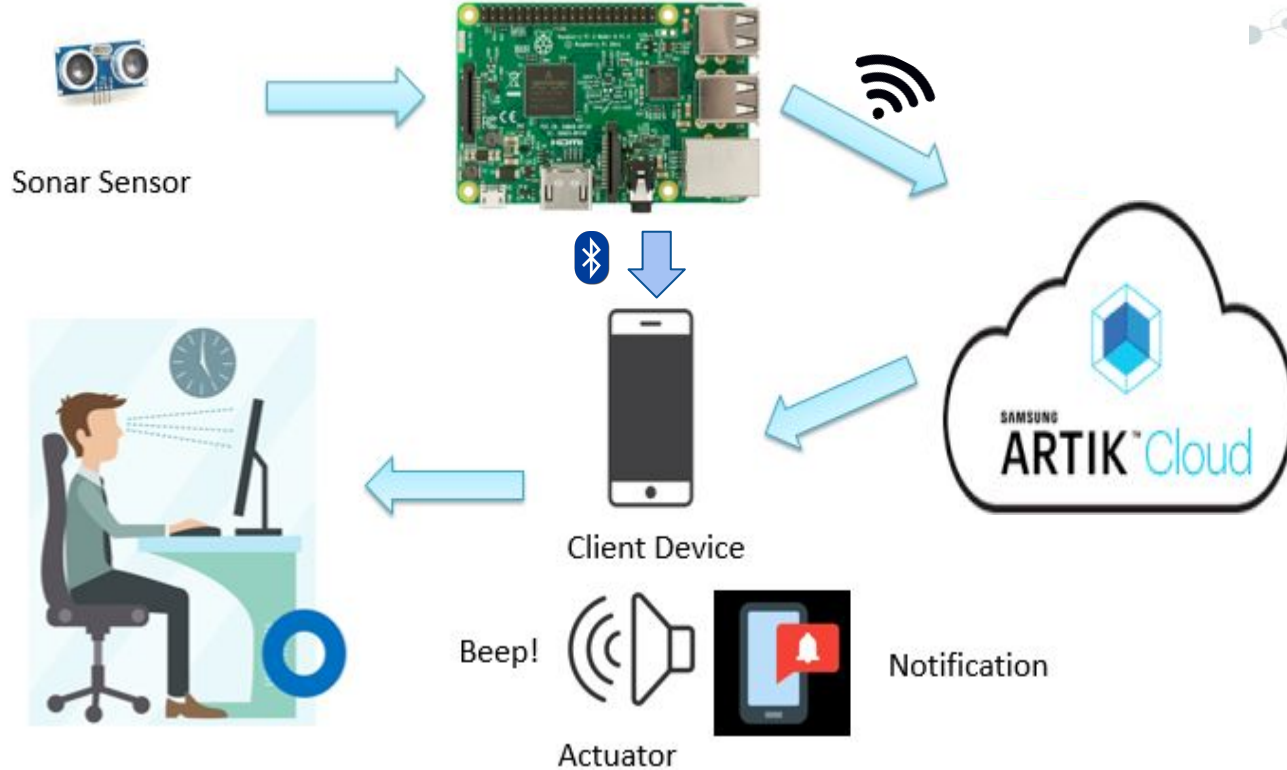
## Communication for statistics



A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. The nodes are represented by small circles, some of which are solid grey and others are hollow with a grey outline. The lines connecting them are thin and grey, creating a dense, organic structure.

# Architecture

# Architecture

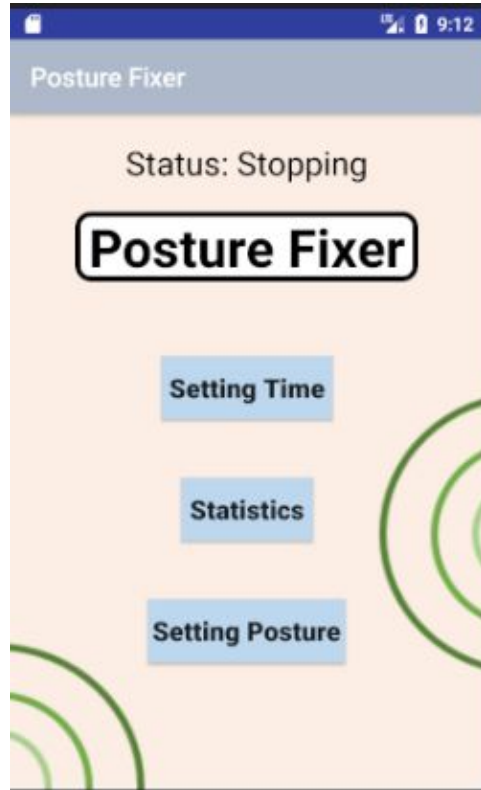


A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. The nodes are represented by small circles, some of which are larger and have concentric circles, suggesting different levels or types of connectivity. The lines are thin and gray, creating a mesh-like structure.

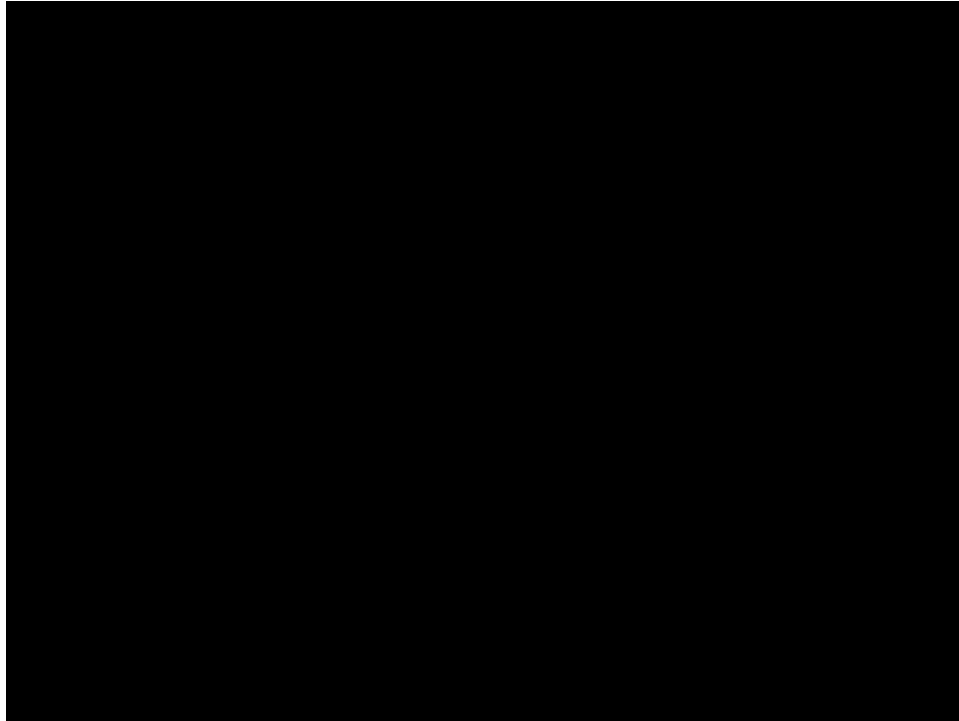
# How it works



# Welcome Page

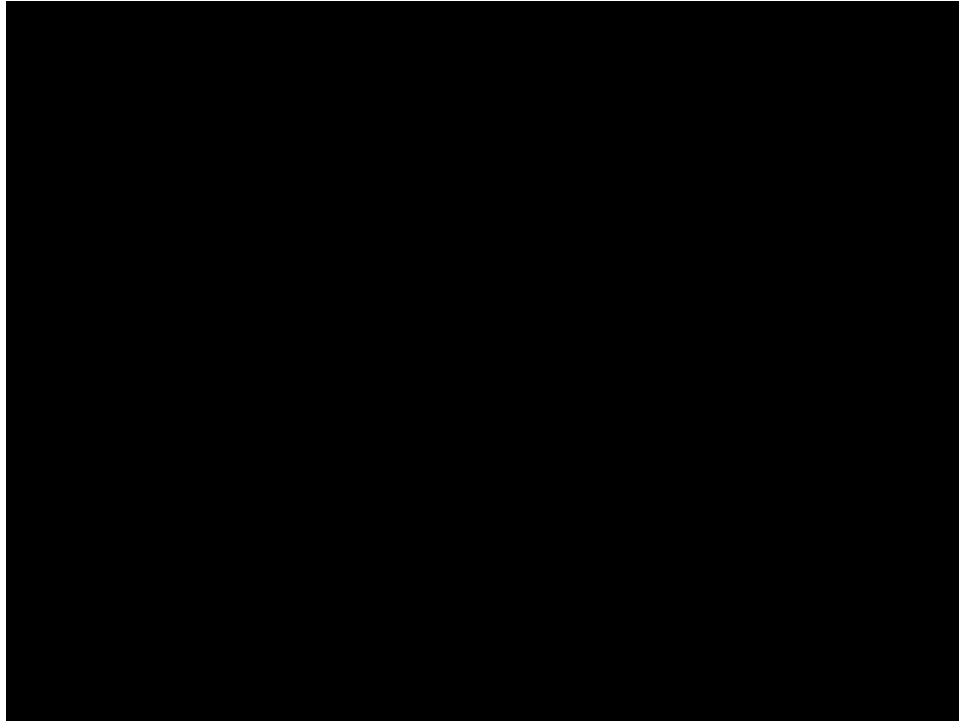


# Setting Time - specific time



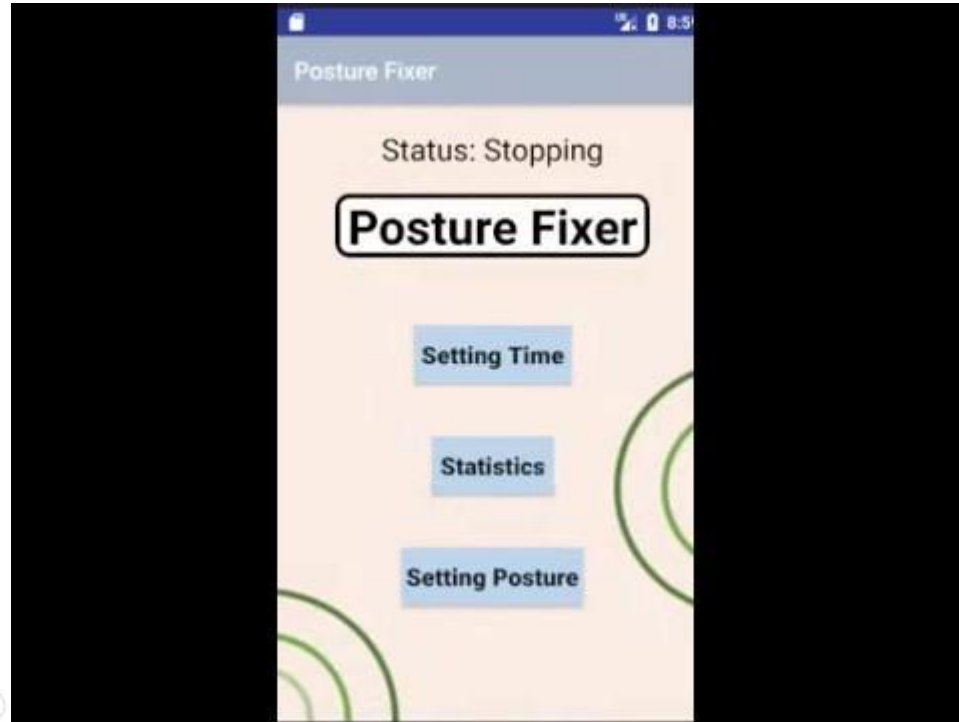
<https://drive.google.com/open?id=1dP3xWBdcD3O36qsW6olOKftCg4xFBYb3>

# Setting Time - Button



<https://drive.google.com/open?id=1bqpP78rtjk3NfUhpVGCrYME3Z3EIkBD7>

# Setting Posture



<https://drive.google.com/open?id=1DfOsWahwjQ2WHgj5B80S1XIXoFE1dp7D>

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# Plans

# Plan

- ◎ We made basic function and UI of Android App
- ◎ Remaining work
  - Sending sonar sensor data from Raspberry Pi to Cloud (~11/30)
  - Sending sonar sensor data from Raspberry Pi to App (~11/30)
  - Sending data from Cloud to App for statistics(12/1~12/7)
  - Draw graph using data in App(12/1~12/7)
  - Make equation for deciding whether Posture is good or bad (12/1~12/7)

# Appendices

- ◎ Proposal presentation:

[https://docs.google.com/presentation/d/1mPka3o9Z\\_TKMSviaAPKNeDv78ohkpxW6ljdrkyaTXtU/edit?ts=59e6e68d#slide=id.g270fc8a2a8\\_0\\_42](https://docs.google.com/presentation/d/1mPka3o9Z_TKMSviaAPKNeDv78ohkpxW6ljdrkyaTXtU/edit?ts=59e6e68d#slide=id.g270fc8a2a8_0_42)

- ◎ Requirements presentation:

[https://docs.google.com/presentation/d/1do6esaTsl\\_NTU8wtmG-OQR-oYSvhouKGIJo0PmHZSfA/edit?usp=sharing](https://docs.google.com/presentation/d/1do6esaTsl_NTU8wtmG-OQR-oYSvhouKGIJo0PmHZSfA/edit?usp=sharing)

