User Manual

This user manual explains the setup of the smartwatch application and server to record sensor data. In section 0.2 the setup of the server is explained, in section 0.1 the setup of the application is explained.

0.1. Server setup

The server is built using the Flask web-framework written in Python. The server can be hosted on a local machine or using a third-party Python web hosting service. The roadmap for both options are explained below.

0.1.1. Server on local machine

1. Download the server files from GitHub: `https://github.com/MarijnSluijs/GetSmart/tree/main/Server`.
2. Create MySQL database to store data. Documentation: `https://www.w3schools.com/python/python_mysql_create_db.asp`.
3. Add MySQL database to the flask file flask_app.py on line 20.
4. Run flask_app.py to start server. The server is now accessible on the local network.
5. To access the server from outside the local network, port 80 has to be forwarded on the router.

The server can now be accessed on the local network using the local IP address of the machine. To access the server from outside the network, the IP address of the router has to be used.

0.1.2. Server on third-party web hosting service

1. Download the server files from GitHub: `https://github.com/MarijnSluijs/GetSmart/tree/main/Server`.
2. Import server files to web hosting service.
3. Create MySQL database on web hosting service.
4. Add MySQL database to the flask file flask_app.py. on line 20.
5. Start hosting the server.

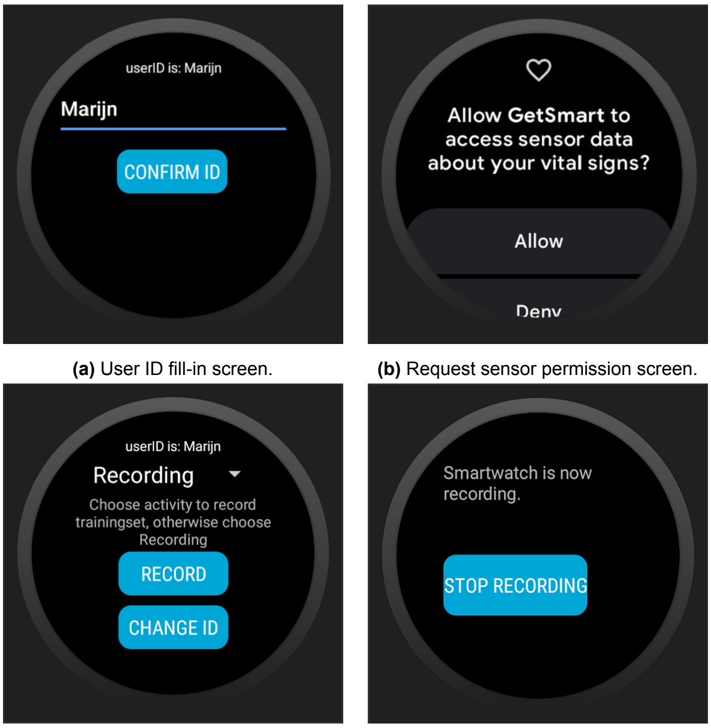
The server can now be accessed using the website URL given by the web hosting service. An image of the website is shown in Figure 2.

0.2. Smartwatch application setup

The smartwatch application is developed for the smartwatch Samsung Watch 4. To download the application onto the smartwatch, the following steps need to be done:

1. Download the application from Github: `https://github.com/MarijnSluijs/GetSmart/tree/main/Smartwatch%20app`.
2. Unzip folder and open in Android Studio.
3. Link Samsung Watch 4 to Android Studio using Wifi or Bluetooth. Documentation: `https://developer.android.com/training/wearables/get-started/creating`.
4. Add server IP address/URL in the transmitData.kt file on line 28.
5. Click ”Run ’app’” in Android Studio to upload the application to the smartwatch.

The smartwatch application is now ready to be used. After opening the application, a screen is shown to fill in the user ID (Figure 1a). With the user ID, the recording sessions can be distinguished from other smartwatch users on the server. After filling in the user ID, a screen is shown asking for permission to access the sensors (Figure 1b). For the application to function correctly, permission to the sensor has to be granted. After granting permission, the home screen is shown (Figure 1c). On this screen the user can specify the type of activity performed in case the researcher wants to create a training data. Otherwise the user can leave it on ”Recording”, meaning that a dataset will be recorded without the type of activity specified.



Allow GetSmart to access sensor data about your vital signs?

Choose activity to record trainingset, otherwise choose Recording

Smartwatch is now recording.

(a) User ID fill-in screen.

(b) Request sensor permission screen.

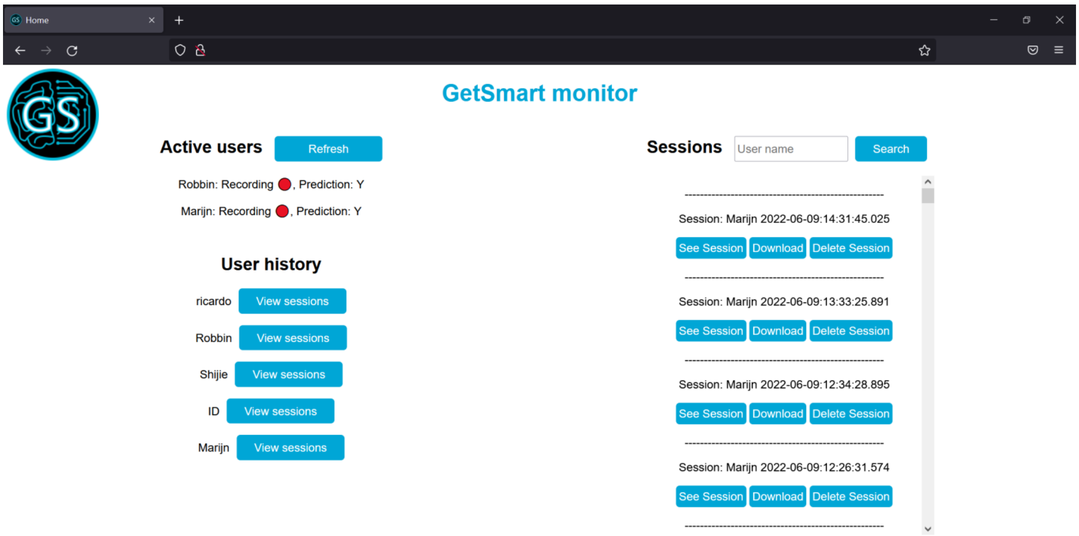
(c) Home screen.

(d) Recording screen.

Figure 1: Smartwatch application screens.

0.3. Recording data

To send data, the smartwatch user has to click on the button ”RECORD” on the home screen. The data will be sent to the server where it is stored. On the website of the server the active users, user history and recording sessions are shown. From here the smartwatch wearers can be monitored and recordings can be downloaded.



GetSmart monitor

Active users

Robbin: Recording ●, Prediction: Y

Marijn: Recording ●, Prediction: Y

User history

ricardo

Robbin

Shijie

ID

Marijn

Sessions

Session: Marijn 2022-06-09:14:31:45.025

Session: Marijn 2022-06-09:13:33:25.891

Session: Marijn 2022-06-09:12:34:28.895

Session: Marijn 2022-06-09:12:26:31.574

Figure 2: Website of the server.