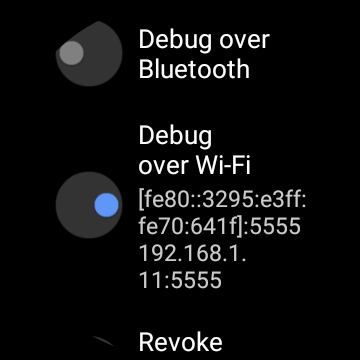
**Running the Smartfall-Multi-Model-Native Application:**

1. You need java 18, Android studio (giraffe) on your computer.
2. Open a folder in your computer (i.e. Smartfall)
3. Once you enter the folder right click the mouse and select “open in terminal”. You will see the command prompt window as a pop up at this point and open a folder where you would like a keep this repository.
4. Go to <https://git.txstate.edu/hn12/SmartFall-Multi-Model-Watch.git> in GitHub. Click the green button that says “<> code” and copy the URL.
5. Write “git clone <https://git.txstate.edu/hn12/SmartFall-Multi-Model-Watch.git>” and hit enter.
6. Once the code is cloned 100%, run command “cd Smartfall-Multi-Model-Watch” to enter the directory.
7. The first time you are running the application on any phone or watch you need to enable ADB debugging under settings. Go to about and click several times on the build number and that will make you a developer in both phone and watch then go to developers option under settings and turn on ADB debugging and debug over wifi.
8. Open terminal in your computer and write the command with adb code from your watch. For example in this case we would write “adb connect 192.168.1.11:5555”. When we see connected we can start debugging over wifi.



1. Open Android Studio and load the project using import project option. It would take some time to load the project. If it does not build automatically then build the project first from the top menu of Android Studio.

A screenshot of a computer

Description automatically generated

**Steps to change the model manually:**

1. Go to SmartFallConfig.java
2. Change the model type as you want under” MODEL\_TYPE” and comment out the other one.
3. Change the personalized strategy as you want under” PERSONALIZED\_STRATEGY” and comment out the other one.
4. Select if you want to run the online model or you want to load a model manually as offline. If you want to run the personalization select “ONLINE” under “MODEL\_FROM” otherwise select “OFFLINE” and load your own model.
5. For offline model Change the model’s name with whatever model you are using under “OFFLINE\_MODEL\_FILE”.
6. Change the threshold if you need to under “OFFLINE\_MODEL\_THRESHOLD.”
7. Change the window size under “BETA\_LIMIT” and the averaging value under “ALPHA\_LIMIT”.
8. Connect the phone and watch and run the program in both app and wear.

**Steps to start the App on the phone and watch every day:**

1) Find SmartFall App on the phone and launch it. You will see the following screen when it is launched successfully:

A screenshot of a phone

Description automatically generated

2) Launch the WearOS app on the watch and the following “Fell” screen is displayed (Profile only need to be created once on the phone):

A red and white sign with a bell

Description automatically generated

**3**) After creating the profile, you will see the home screen with “Activate” button. By pressing this button you can start data transmission in the application.

A red square with white text

Description automatically generated

4) The watch screen will show the data transmitting that means our app has been installed successfully. Now you can start testing.

5) While the App is running, whenever the App predicts that you might be falling, the following prompt/notification on the right most will be displayed. The watch will vibrate to give you a reminder about the prompt/notification:

Graphical user interface, chart, application

Description automatically generated

**You have two options here:**

**1) When you response with “YES”, It will ask you to response to the second question, ie. Did you fall. Response with “NO” if you did not fall (you will response this way almost all the time)**

**2) When you response with “YES”, it will display “Help is on the way” screen. This will send an email to your caregiver.**

**Help is on the way screen:**

**If you did not response to this yes/no notification screen, 5 minute later it will automatically display “Help is on the way” screen. If “help is on the way” shows up by mistake, swipe right to get back the yes/no prompt (the previous screen) and response to it.**

Sometimes, you can get many prompts one after another, just response one by one.

1. If at any point you press the “Deactivate” button on the phone, the system will stop collecting the data and you will see the earlier screen “Activate” button. You can press the “Deactivate” button whenever you want to stop using the watch or when the battery is low. It is best to put the watch on the charger after you stop it.
2. If you press the “Activate” button, the system will go back to collecting data again.
3. The battery will typically last 5+ hours (Huawei watch) in the watch if you run the App continuously. To check the level of battery, go to the home screen by pressing on the top button on the watch and do a swipe down.

If you forgot to check the battery, when the battery is critical low, the watch will vibrate, and it will automatically power off. If that happens, just recharge it and then force quit the wearos App when there is sufficient power to perform that operation.

10) How to force quit/shut down the wearos app on the smartwatch:

1. Press the top button on the side of the watch twice to see the app list
2. Find  'Setting' and press/touch it.
3. Find 'App&notifications' and press it.
4. Find 'App info' and press it
5. In the App info list, find 'wearos' and press it.
6. Press 'Force stop' option first and then press 'check' mark.
7. After that, the wearos App has been shut down on the watch.

**How to use the watch:**

The way you interact with the watch is via the two side buttons and touch or swipe the watch screen.

1) The watch will switch to ambient mode after you cover your watch with your palm or perform no operations for 5 seconds.

1) Press once on the top button will go to the home screen

2) Press the second time will open the application lists

3) The screen will toggle between home screen and application list by pressing

4) Press and hold the top button for a while will activate the voice service (we do not use the bottom button). If activate the voice service is not intended, just press the top bottom to return to home screen.

5) Touching the screen to select and confirm

6) Swipe up to view the current running App

7) Swipe down to get to the short-cut menu to check the battery

8) Swipe from edge to edge will change the watch face options

9) Swipe right will return to the previous screen

Whenever there are other notifications pop up by mistake, just press the home button to get back to home screen and press again to go back to back to the list of apps and press “WearOS” to get back to the App.

**Common issues while running the project:**

1. If the phone stop transmitting data, you do not see any data transmitting after clicking Activate. In this case shut down the app in both phone and watch clear the cache in phone. Then open the app in both devices.
2. If you can not see the watch in android studio turn off the ADB debugging and turn it on again.
3. When you are tracking the prediction values in the log in Android Studio. Sometimes the prediction value can go high. Usually, it should be from 0-1. If it is increasing over time that means the model has not been loaded properly. Try to do it again from the beginning and run again in phone.