YILDIZ TECHNICAL UNIVERTSITY DEPARTMENT OF COMPUTER ENGINEERING

HOMEWORK

Course Name:	Introduction to Mobile Programming
Course Group:	Group 1
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General Overview of the Application

Phone State application counts the time of phone's active/passive state in a Service using phone's accelerometer sensor and updates the UI in every 200 milliseconds.

Technical Details

In this section you will have a detailed information about the application's structure.

MainActivity

This is the only Activity of the application. MainActivity's mission is starting the MainService and updating the UI according to the information coming from MainService. It sends commands to MainService through Intents and receives information about phone's state from MainService using ResultReceiver. When a result is received (from MainService) a Runnable object updates the UI on UI thread.

MainActivity will call justUpdateUI() method in it's onCreate() in order to:

1. Start the MainService if it is not started already.
2. Set the ResultReceiver object in the MainService in order to correctly receive updates from MainService.

MainService

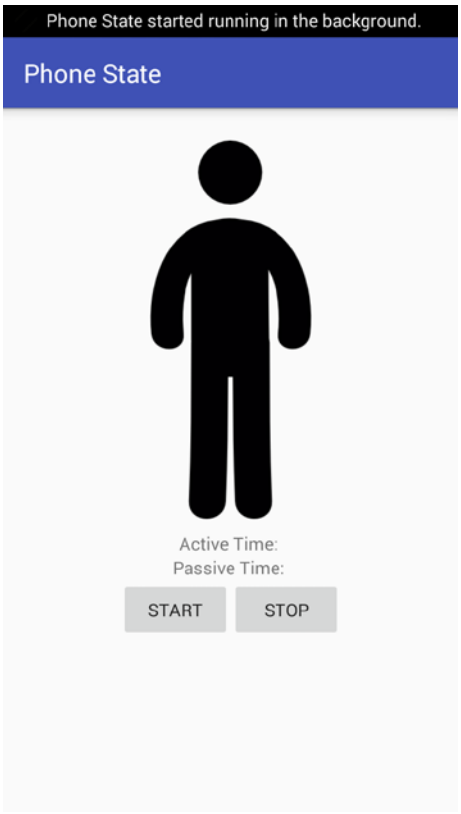
MainService has only one task and that is to listen the accelerometer sensor event, count the time (whether it is active or passive time of the phone) and send this active/passive time information to the MainActivity through MainActivity's ResultReceiver object. MainService sends update message to MainActivity (to the UI) every 200 ms.

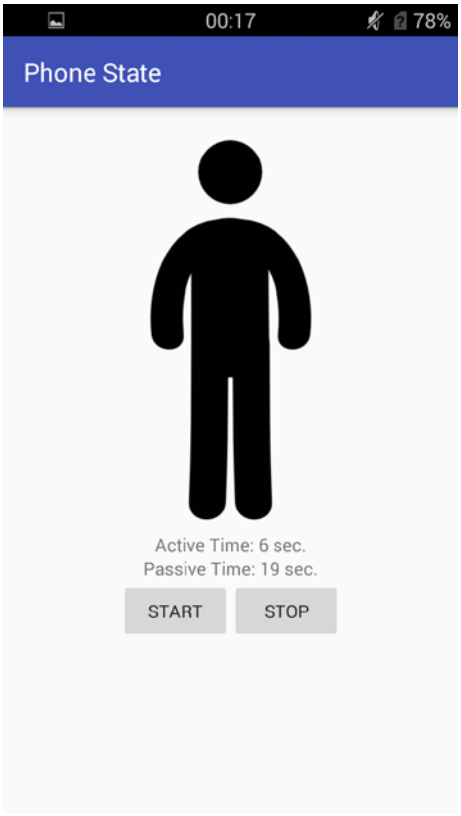
This service is an Unbounded Service, it will work even when the MainActivity is destroyed. When MainService starts, a notification appears in the NotificationDrawer that shows the Service is active.

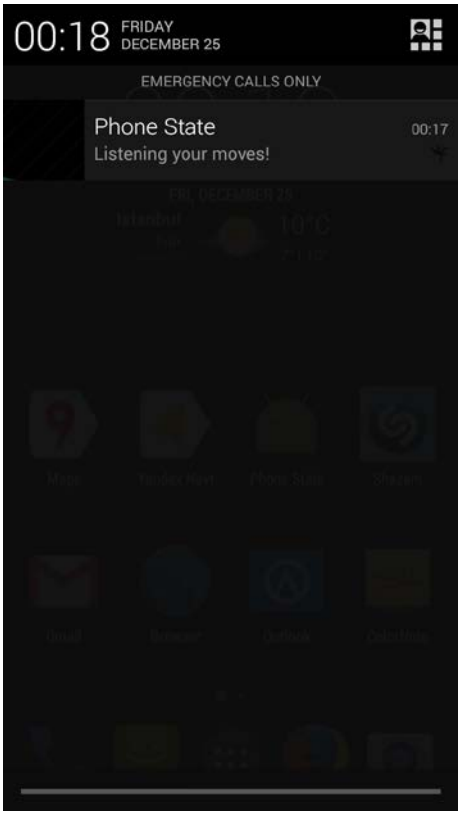
Sensor

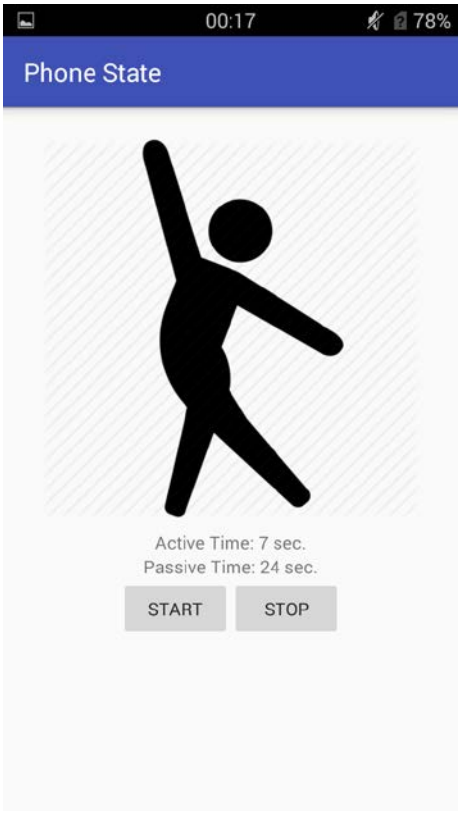
Only accelerometer sensor is used in order to determine whether the phone is in active state or passive state. Euclidean Distance is used to calculate the changes between sensor value changes. Threshold value for "active state" is 3 and for "very active state" is 6. Note that only the "active state" is used to determine if user is active or passive. "Very active state" is only used to display the dancing man picture. Sensor delay is set to SensorManager.SENSOR_DELAY_NORMAL.

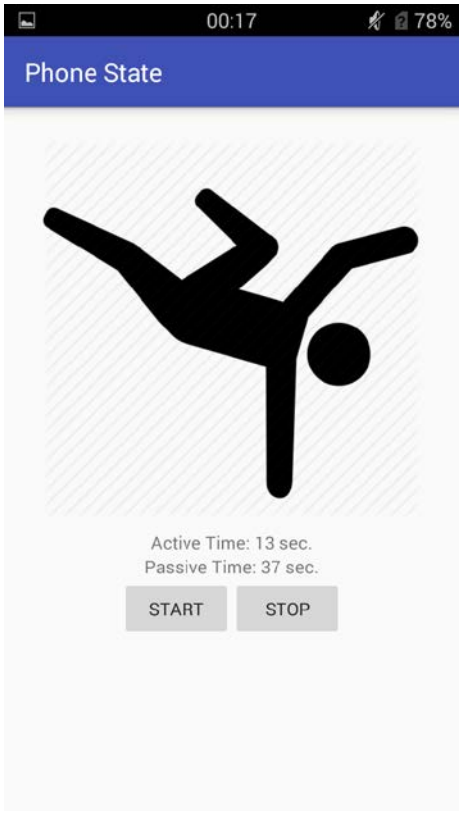
Screenshots











If user's phone accelerates a lot (Euclidean Distance > 6.0) then this break-dancing man image appears instead.