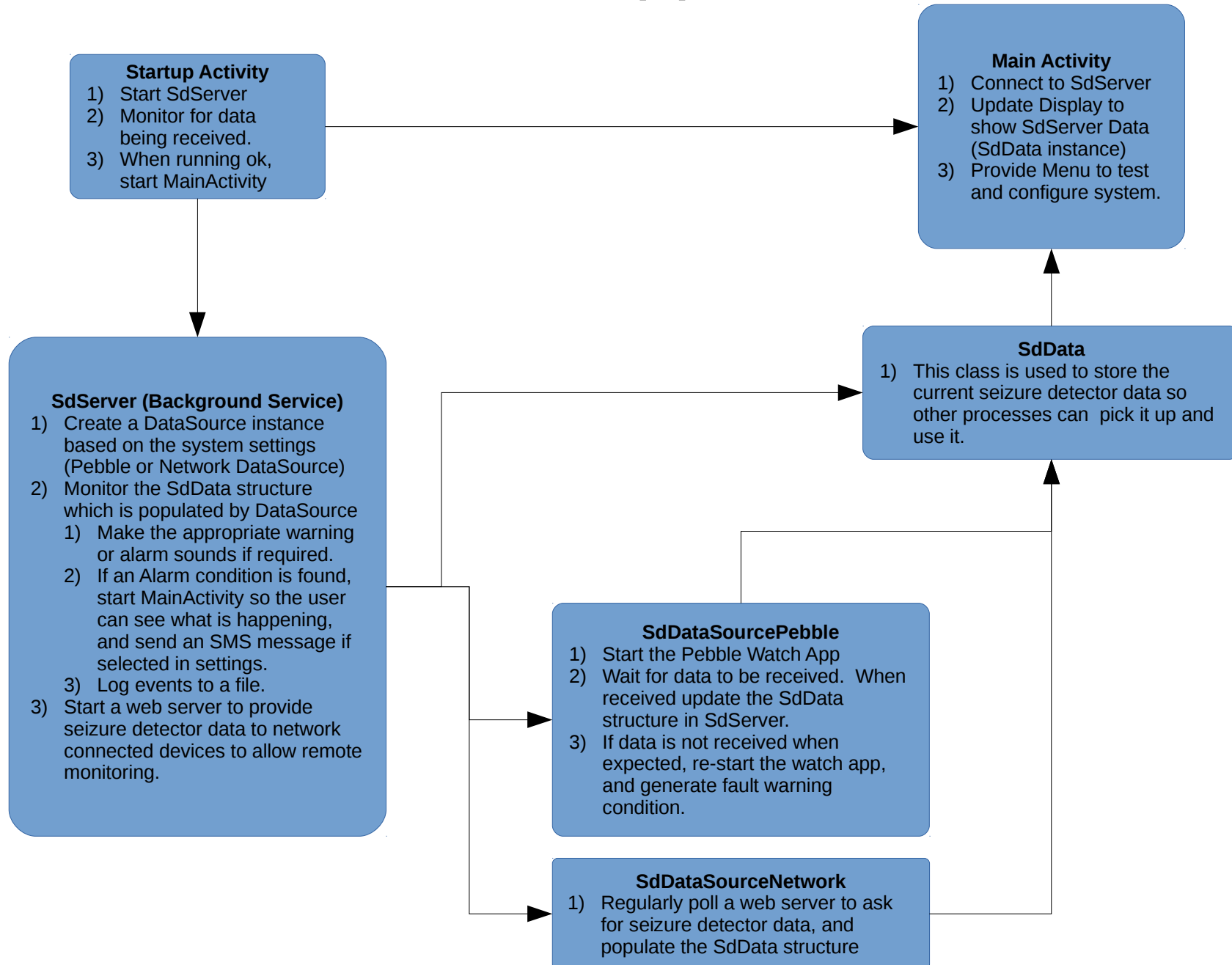# OpenSeizureDetector Alarm System

- The OpenSeizureDetector Alarm System (the OpenSeizureDetector Android App) has 4 main purposes:
  - **Start the 'DataSource'** that provides seizure detection.
  - **Monitor that data is being received** from the DataSource at the expected period and raise fault warnings if not.
  - Monitor the data returned by the DataSource and **raise the appropriate alarm warnings**:
    - Locally by making an alarm noise.
    - Remotely by SMS.
  - Provide a **web interface** that other devices can use to monitor the seizure detector remotely over wifi.

Android App Structure

Startup Activity
1) Start SdServer
2) Monitor for data being received.
3) When running ok, start MainActivity

Main Activity
1) Connect to SdServer
2) Update Display to show SdServer Data (SdData instance)
3) Provide Menu to test and configure system.

SdServer (Background Service)
1) Create a DataSource instance based on the system settings (Pebble or Network DataSource)
2) Monitor the SdData structure which is populated by DataSource
   1) Make the appropriate warning or alarm sounds if required.
   2) If an Alarm condition is found, start MainActivity so the user can see what is happening, and send an SMS message if selected in settings.
   3) Log events to a file.
3) Start a web server to provide seizure detector data to network connected devices to allow remote monitoring.

SdData
1) This class is used to store the current seizure detector data so other processes can pick it up and use it.

SdDataSourcePebble
1) Start the Pebble Watch App
2) Wait for data to be received. When received update the SdData structure in SdServer.
3) If data is not received when expected, re-start the watch app, and generate fault warning condition.

SdDataSourceNetwork
1) Regularly poll a web server to ask for seizure detector data, and populate the SdData structure

OpenSeizureDetector GitHub Repositories

- **Pebble_SD** – the Pebble Watch App, that does the seizure detection, and sends data back to the Android App.

- **Android_Pebble_SD** – the Android App that provides the alarm system. It is intended to be generic and use one of a number of data sources – currently works with Pebble and Network data sources, but the intention is to expand it to work with Android Wear and Empatica Embrace.