

Displaying Computerized ECG Recordings and Vital Signs on Windows Phone 7 Smartphones

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Introduction: Because smartphones are popular in all age groups, one could posit that they might be useful as a portable health monitor for physiological parameters and as an ECG imaging device. Smartphones support many communication standards like GSM, WIFI and Bluetooth so physiologically monitored parameters could be sent wireless from anywhere in the world to telemedicine healthcare centers. But due to the rapid evolution in the mobile market existing software is often not reusable for the new upcoming mobile devices. Therefore a new mobile biomedical application was developed to test and to judge the suitability of the new Windows Phone 7 mobile platform as an ECG imaging device and a vital sign viewer in the future. Methods: Visual Studio 2010 Express for Windows Phone was used to develop the new mobile ECG and vital sign viewer. The application does run on the Windows Phone 7 Emulator. The software emulator was released by Microsoft to allow new software development prior to the release of the Windows 7 smartphones. Silverlight (a mix of C# and XAML) was used for coding. The graphical user interface was designed to display continuous, digitally recorded ECG data and also discrete values of blood pressure and oxygen saturation. Results: Using the latest Windows Phone 7 development tools a mobile biomedical ECG viewer application on the smartphone could be developed with minimal effort. The limiting factor of monitoring and viewing the ECG tracings was the small smartphone display size. Especially for elderly people the small touch-screen may be difficult to see and operate. Because of the small display it is not feasible to display a reasonable 12 lead ECG. Nevertheless, smartphones can be useful for the mobile transmission of physiological data to telemedicine healthcare centers or personalized health or fitness portals due to their multiple wireless communication capabilities.