

A Personalised Self Management System for Chronic Heart Failure

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Within our current work we are developing a home based Personalised Self-Management System (PSMS) for persons suffering from Chronic Heart Failure (CHF). Users of the PSMS have the ability to record and monitor their vital health information such as blood pressure, heart rate and weight in addition to gross levels of activity. In consultation with their Healthcare Professional (HP) an initial set of life goals are identified. Each of these goals will require some form of physical activity for example walking. Through the use of a touchscreen PC and smartphone in addition to a suite of telehealth devices it is possible for the PSMS to record health information whilst providing summative feedback on gross activity.

A touchscreen PC and smartphone are used for reviewing and entering information. Using the in-built accelerometer and GPS module, the smartphone can be used to monitor the movement of the user whilst recording how much activity is undertaken while outside of the home. The phone can also provide real time, motivational, feedback regarding the users goal achievement. Through the use of a suite of sensor technology such as PIRs, door, chair and bed sensors it is possible to record gross levels of activity within the home. Any information either entered into the system or acquired directly from sensors can be made available to healthcare professionals for review via a customisable web portal. Should any abnormalities or potential problems arise, the HP has the ability to adapt the users goals or alter other parameters under the systems control.

To date the PSMS has been evaluated by 8 persons suffering from CHF in a supervised user evaluation. Results from this evaluation have provided positive feedback on the User Interface and health information feedback although users did report negative features of the system in relation to the presentation of health information over long periods and the responsiveness of the smartphone touchscreen. Feedback following user evaluations has been used to guide ensuing cycles of technical development.

Long-term plans for the PSMS are to conduct user evaluations with 20 sufferers of CHF within their own home environment.