Can your phone double up as your life-coach?

January 2 2013

AIRS widgets on the Android home screen Credit: Dirk Trossen

(Phys.org)—Researchers are developing a smartphone platform that enables careful monitoring of lifestyle to pinpoint and help avert triggers for stress and negative emotion.

On January 1st, millions of people will wake up with their sore heads full of New Year resolutions to achieve more fulfilling, less stressful lives. Now, researchers are developing a data-gathering mobile platform to help identify the causes of stress for individuals and encourage people to

build healthier, happier lifestyles – something that could become a preventative measure for a huge number of medical conditions.

Between use of a phone's inbuilt sensors and monitoring from local sources, the Android Remote Sensing app, or AIRS, can gather a huge amount of data – from environmental aspects such as location, weather, noise levels, even vicinity devices to gauge crowds, to social aspects such as calendar events and communication spikes in email, text and calls – providing a startlingly informed account of a person's day.

This automatic recording is coupled with the ability to add emotional data by updating your mood through a series of emoticons, along with text annotations. ECG or heart rate sensors can also be used to show physiological reactions.

All this feeds into a person's unique life "narrative" to determine what the researchers describe as "meaningful events" – those combinations which trigger stress and strong emotion.

"By steering people to become self-aware of stress and activity management, systems such as AIRS may be able to help people before they develop health problems in later life, when costly treatments are required with limited success," said Dr Dirk Trossen, technical manager of the project at Cambridge's Computer Laboratory.

"The time before prescribed medicine is critical in prevention and cutting costs for health services. This requires close monitoring and awareness of lifestyle on the part of individuals – so if the ubiquitous phone in your pocket can also assist with better living in general it's a win/win situation."

AIRS provides essential input for the desktop-based MyRoR platform for lifestyle management, developed by Dana Pavel from the University

of Essex's School of Computer Science, as part of the wider PAL project. The project – funded by the Engineering and Physical Sciences Research Council and the Technology Strategy Board – is investigating personal and social communication services for health and lifestyle monitoring.

The MyRoR platform correlates this information and delivers it as an easy to digest blog-style timeline, allowing the user to detect spikes in various activities and surroundings – and their relation to the diarised emotional values and physiological symptoms of stress.

The outputs from Pavel's MyRoR platform are sets of sharable graphics that provide a user-friendly entry into the complex data, offering the "essence" of the individual's day or week. "The graphics, or media objects, that present the visual story are a more natural way of representing the dense information, bringing it all together in a fun, concise and engaging way," said Dana Pavel, from Essex's School of Computer Science. "These stories allow users to hone in on what's important, the situations with most meaning."

Users can then employ the AIRS app to craft lifestyle approaches that help flatten stress levels – such as automatic settings that suspend email and calls at key points to create pockets of calm in the day – which can continue beyond initial physical monitoring to support a more balanced life.

There have been a number of user tests – with both ECG monitoring and just the smartphone app – and feedback from users has been positive. "The platform gives people the opportunity to step outside their lives and analyse in-depth contextual data from their day to day existence – an important chance for serious reflection on aspects of daily life that are impacting perhaps without even realising," said Trossen.

Importantly for the researchers, given the personal nature of the data, information security and software transparency have been paramount. All personal data is stored locally, and is wiped if a phone is stolen and unlocked, and the app has been made 'open source' – with all hard coding accessible – and freely available through Google Play.

"This kind of assisted living though mobile technologies is in its infancy, but it is essential that solutions adapt to people, not the other way around, said Trossen.

"Systems should enhance lives and help involve individuals in the information that is having an impact on them every minute."

Provided by University of Cambridge