



## ECG into Your Mobile



A research scientist working at VTT Technical Research Centre of Finland has developed a user-friendly smart phone application that allows consumers to take an electrocardiogram (ECG) in the comfort of their own homes. The pocket-size device communicates with your mobile phone. Irregularities in the heartbeat can be seen with the application which helps to prevent heart and stress-related disorders.

The device allows patients suffering from heart problems to begin recording their ECG as soon as symptoms appear and to send the results to their doctor via email or the internet. The device can also be used in home nursing.

The objective is to launch the device within a year.

Cardiologists use continuous monitoring devices known as Holter monitors to detect irregular heartbeat. In many cases, the patient presents no symptoms during the test and the cause of the problems cannot be established. The Finnish invention is also capable of measuring heart rate variability.

Moreover, the device can be used to detect the symptoms of burnout resulting from work-related stress.

With further development, the device can be adapted to monitoring the sleep patterns of patients suffering from sleep apnea and to warn them of imminent attacks. The device has potential in preventing certain musculoskeletal disorders such as neck, shoulder and lower back pain, tennis elbow and repetitive strain injury, which are common among office workers.

The new Beat2Phone application measures electronic heart signals not just for the purposes of health but also physical fitness.

The device has a global market, and the number of potential users continues to grow with population ageing. Approximately five per cent of the world's population suffer from arrhythmias or irregular heartbeat. Irregular heartbeat often develops with age: Approximately 12 per cent of people over the age of 60 suffer from the

condition.

The number of people interested in endurance sports is also rising. It has been estimated that approximately one per cent of the population in the Western world actively engage in endurance sports.

Athletes need to monitor their heart signals when training near the peak of their capacity in order to detect any symptoms of overtraining. Conditions associated with overtraining, such as palpitations and irregular heartbeat, can be prevented with the help of this effective personal heart rate monitoring device.

The device measures ECG signals at a sufficiently high sampling rate, identifies individual heart beats and counts the interval between consecutive beats. The device is also equipped with an accelerometer. The signals are sent to a smart phone via Bluetooth. The application displays ECG, heart rate and its variability. The signal from the accelerometer can also be used as a step counter.

Beat2Phone is the first device and software application developed for Android phones that can be used to measure and save an ECG and to perform an extensive analysis of the data. The device also enables an advanced heart rate analysis, and GPS-based speed and distance measurements. Compared to wristband devices, smart phones represent the best available user interface technology.

Mobile phones have evolved into pocket computers with memory capacity, clock rate, computing power and user interface technology comparable to desktop computers of just a few years ago. Smart phones have the capacity for easy storage of digital information and for transmitting it to service providers via the internet.

The prices of fast pocket computers are also coming down rapidly. Within five years, smart phones and tablets will replace desktop computers at least in some spheres of life, and almost everyone will be carrying a small and extremely powerful computer.

Source: [VTI](#)

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