

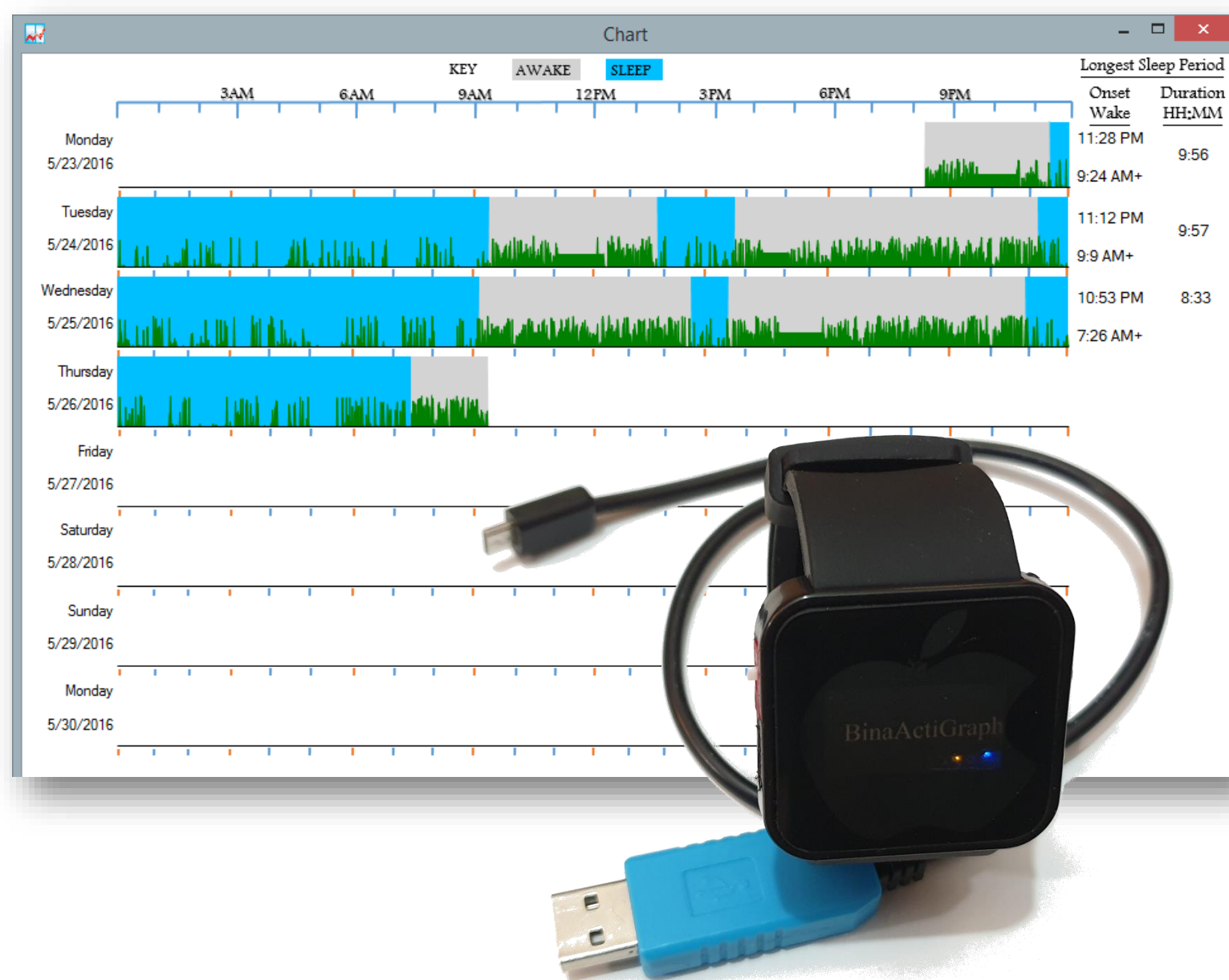


ActiGraph to record sleep

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Abstract- Actigraphy is a non-invasive method of monitoring human rest/activity cycles. A small actigraph unit, also called an actimetry sensor, is worn for a week or more to measure gross motor activity. The unit is usually in a wrist-watch-like package worn on the wrist. The movements the actigraph unit undergoes are continually recorded and some units also measure light exposure. The data can be later read to a computer and analysed offline; in some brands of sensors the data are transmitted and analysed in real time. We have designed and develop an actigraph device and below describe this device.

key words: Actigraph - Sleep - Bioelectric



Introduction

Sleep actigraphs are generally watch-shaped and worn on the wrist of the non-dominant arm for adults and usually on the ankle for children. They are useful for determining sleep patterns and circadian rhythms and may be worn for several weeks at a time. In the medical setting, traditional polysomnography has long been cited as "the 'gold standard' for sleep assessment." Since the 1990s, however, actigraphy has increasingly been used to assess sleep/wake behavior. Studies have found actigraphy to be helpful for sleep research because it tends to be less expensive and cumbersome than polysomnography. Unlike polysomnography, actigraphy allows the patient to be movable and to continue her or his normal routines while the required data are being recorded in his or her natural sleep environment; this may render the measured data more generally applicable. As sleep actigraphs are more affordable than polysomnographs, their use has advantages, particularly in the case of large field studies.

Actigraphy has been actively used in sleep-related studies since the early 1990s. It has not traditionally been used in routine diagnosis of sleep disorders, but technological advances in actigraph hardware and software, as well as studies verifying data validity, have made its use increasingly common. The main reason for this development is the fact that, while retaining mobility, actigraphy offers reliable results with an accuracy that is close to those of polysomnography (above 90% for estimating total sleep time but dropping to 55% for a 4 - way sleep stage estimation problem). The technique is increasingly employed in new drug clinical trials where sleep quality is seen as a good indicator of quality of life. The technique has also been used in studies with individuals in both health and disease, e.g., Alzheimer's and fibromyalgia, conditions.

Methods

An accelerometer, microcontroller and memory are used to make the actigraph. This patent software is supported on Windows operating system (any version). An innovative algorithm is used to estimate sleep and wake times. A wristwatch is used for the frame.

Property

Size: Watch size 3 x 4 cm

Time cycle: one minute (Customizable if needed)

Battery life: Different in vary versions up to 10 days

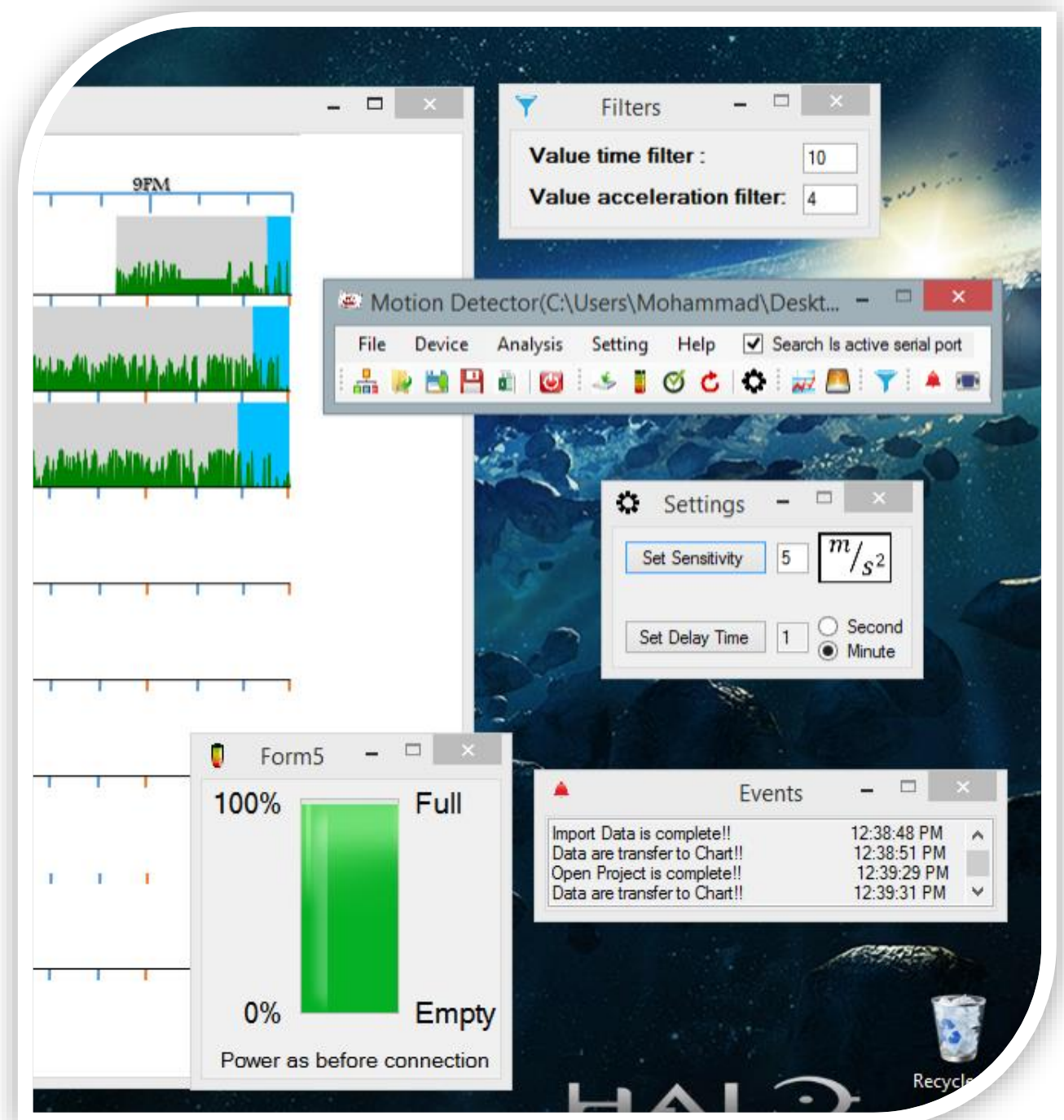
Connect and charge: Via usb cable

Interface: Multi LED and BinaActiGraph Windows software

Report: Text file and Excel

user manual

The device should first charge about 20 minutes ,for this purpose, you can connect the dedicated cable to either the device or the charger with a usb port. Initial settings should be as follows: 1- Update device time, 2- Adjust the sleep and wake display, 3- Reset the device. If you remove the wristwatch, You need to set the button on the device to be on. You need to set the button on the device to be on. Define a new project and get device information. Through the filter window settings, you can define your own standards for estimating sleep and wake time. With the Chart button all information is visible for a week. The information can be saved as an encrypted text file or an Excel file.



Conclusions

New technologies can make tools and equipment easier and cheaper. Software knowledge and artificial intelligence can also be a possibility in our lives that we never imagined. This product is made for the **Binatooth** business. We are ready to use your feedback and suggestions for product promotion or new product development. Patent Number: 139550140003006979 in 1395/06/09

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Bibliography

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