

Bitalino's Parkinson Application - User Manual

Condition

Parkinson's disease is caused by the death of certain nerve cells in the brain. These nerve cells produce a substance called dopamine. Dopamine is a chemical that is responsible for the normal working of the part of the brain that controls movement. The dopamine deficiency leads to the symptoms of the disease.

Signs and Symptoms

The following symptoms are characteristic of the Parkinson's disease:

- **Tremor.** A tremor, or shaking, usually begins in a limb, often your hand or fingers. You may rub your thumb and forefinger back-and-forth, known as a pill-rolling tremor. Your hand may tremor when it's at rest.
- **Slowed movement (bradykinesia).** Over time, Parkinson's disease may slow your movement, making simple tasks difficult and time-consuming. Your steps may become shorter when you walk. It may be difficult to get out of a chair. You may drag your feet as you try to walk.
- **Rigid muscles.** Muscle stiffness may occur in any part of your body. The stiff muscles can be painful and limit your range of motion.
- **Impaired posture and balance.** Your posture may become stooped, or you may have balance problems as a result of Parkinson's disease.
- **Loss of automatic movements.** You may have a decreased ability to perform unconscious movements, including blinking, smiling or swinging your arms when you walk.
- **Speech changes.** You may speak softly, quickly, slur or hesitate before talking. Your speech may be more of a monotone rather than with the usual inflections.
- **Writing changes.** It may become hard to write, and your writing may appear small.

This application allows for the detection of tremor, the most important indicator, by the use of the accelerometer present in the Bitalino.

Patient Use

1. In order to use the application, the patient must first turn the Bitalino device on.
2. Once the Bitalino is working, the patient must run the computer program.
3. First, the IP of the server must be entered (this address will be provided by the caregiver).
4. After the connection has been established, the application will ask for the client to sign up or sign in. In the first case, a username ("Doctor" is not allowed) and a password will be written. If they are accepted, the application will ask the patient

to sign in. The process is the same: the patient will provide his username and password.

5. Once he has been registered, he will be asked for the signs and symptoms he is experiencing. After writing them, he will be able to record two or more signal readings. Since we are detecting tremor, the patient will hold the device in the air and the Bitalino will record the shaking of the arm. The start of each reading may take some time.
6. Finally, the information will be sent, and the patient can exit the program and turn the Bitalino device off.

Doctor Use

1. To start using the application, caregivers will have to sign in. The password is established as “doctor” by default.
2. Once they are signed in, they will choose which patient they want to work with or if they want to exit the application.
3. After choosing a patient, the doctor must choose between different options. Viewing a file will display the content of the file on the screen. Deleting a file will eliminate that file from the server (THIS OPTION CAN NOT BE UNDONE). Finally, modifying a file allows the doctor to introduce some annotations at the end of it.