

# Smart app to diagnose Parkinson's disease

June 1 2018

---



Credit: Ketut Subiyanto from Pexels

Parkinson's disease (PD) is a slow, progressive disorder of the central nervous system affecting between 7 and 10 million people worldwide. In Europe, there are 1.2 million people living with the disease, most of them over 50. PD develops gradually over time and early signs are so subtle that they often go unnoticed. Although we know that some

symptoms set in years before the disease is diagnosed, there's no specific way to detect PD early on.

Keeping in mind the significant benefits of [early detection](#), patients, doctors and engineers joined forces to find a solution in the EU-funded project i-PROGNOSIS. Coordinated by the Aristotle University of Thessaloniki, Greece, the four-year project is developing a set of technology-based solutions for the early detection and care of the disease.

The i-PROGNOSIS approach is based on the unobtrusive collection of behavioural data obtained from users' natural interaction with their smart devices. The aim is to capture data that may be linked to early PD symptoms.

With this goal in mind, in 2017 the team launched the iPrognosis mobile application (available for free on the Google Play Store) in Germany, Greece, Portugal and the United Kingdom. According to a news release on the project website, more than 740 Europeans have downloaded the app on their smartphones, smartwatches or fitness bands since its release.

Feedback to date is very positive. A questionnaire circulated to app users confirms the project partners' initial findings that the app doesn't change a smartphone's normal operation. Users also reported needing little assistance to set up and use the app. They consider it a useful tool in early PD detection research.

## **How does the app work?**

Following user consent, the app collects a wide variety of data: voice characteristics while users are talking on the phone, hand steadiness while they're holding the device and keystrokes-related data when using

the app's keyboard. Other information is also gathered about distance covered each day, facial expressions from stored photos and emotional content from stored text messages.

User privacy is protected by encrypting data and replacing the user's name with a coded ID. Users don't need to change anything about the way they use their smartphones. They can go on making and receiving calls, typing messages and taking photos as they usually do.

Smartwatches and bands have additional advantages. Since they're worn for long periods of time – unlike phones that are usually left lying somewhere – they're able to capture more data on physical activity. The devices' heart rate and skin temperature sensors can also be used to monitor sleep quality, since sleep disorders are an early symptom of PD.

So far, around 433 625 records – about 90 GB of data – have been collected. The data is being used to develop machine-learning algorithms that can detect PD-related behavioural changes. The project partners are now starting to medically evaluate the first version of these algorithms. When the gathered data points to PD-related behaviour, users are asked to visit a doctor. They can then choose to go on to the second stage of detection.

## **What comes next?**

i-PROGNOSIS (Intelligent Parkinson eaRly detectiOn Guiding NOvel Supportive InterventionS) is focusing on capturing additional data that may relate to early PD symptoms. The everyday smart utilities it will be using in this stage are plate scales, smart belts and smart TV remote controls to collect data on food consumption rates, bowel sounds and heart rates, respectively. Ultimately, i-PROGNOSIS plans to design interventions to help Parkinson's patients sustain their quality of life, in collaboration with their doctors.

**More information:** For more information, see [www.i-prognosis.eu/](http://www.i-prognosis.eu/)

Provided by CORDIS

Citation: Smart app to diagnose Parkinson's disease (2018, June 1) retrieved 25 June 2024 from <https://phys.org/news/2018-06-smart-app-parkinson-disease.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.