

# Wearable devices to monitor the athlete's health

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## Introduction

In sports, tracking the condition of athletes is essential to guide physical preparation to avoid the risk of injuries or adverse health events. The article is based on the INNO4HEALTH project, which aims to stimulate innovation in health and fitness monitoring by making use of wearable sensors and IoT devices in order to facilitate recovery for patients and bring training sessions closer to the athlete's actual needs.

## Results

The project provides solutions for technical challenges in the following areas:

- continuous monitoring of patients and athletes
- central data gathering of the monitoring parameters
- secure access and management of data by means of biometric authentication
- automatic interpretation of data to derive relevant information
- dashboards for management of physical and mental state of patients, athletes

## Materials and methods

This project provides an innovative wearable sensor system (in the sole, t-shirts, patches) that meets the needs of both patients and athletes. The architecture can be divided into sensors and wearables, data aggregation and storage infrastructure, artificial intelligence (AI) and end-user applications. Wearable prototypes are used for data collection, such as FitBit Health Bands or Garmin watches, to track the athlete's health.

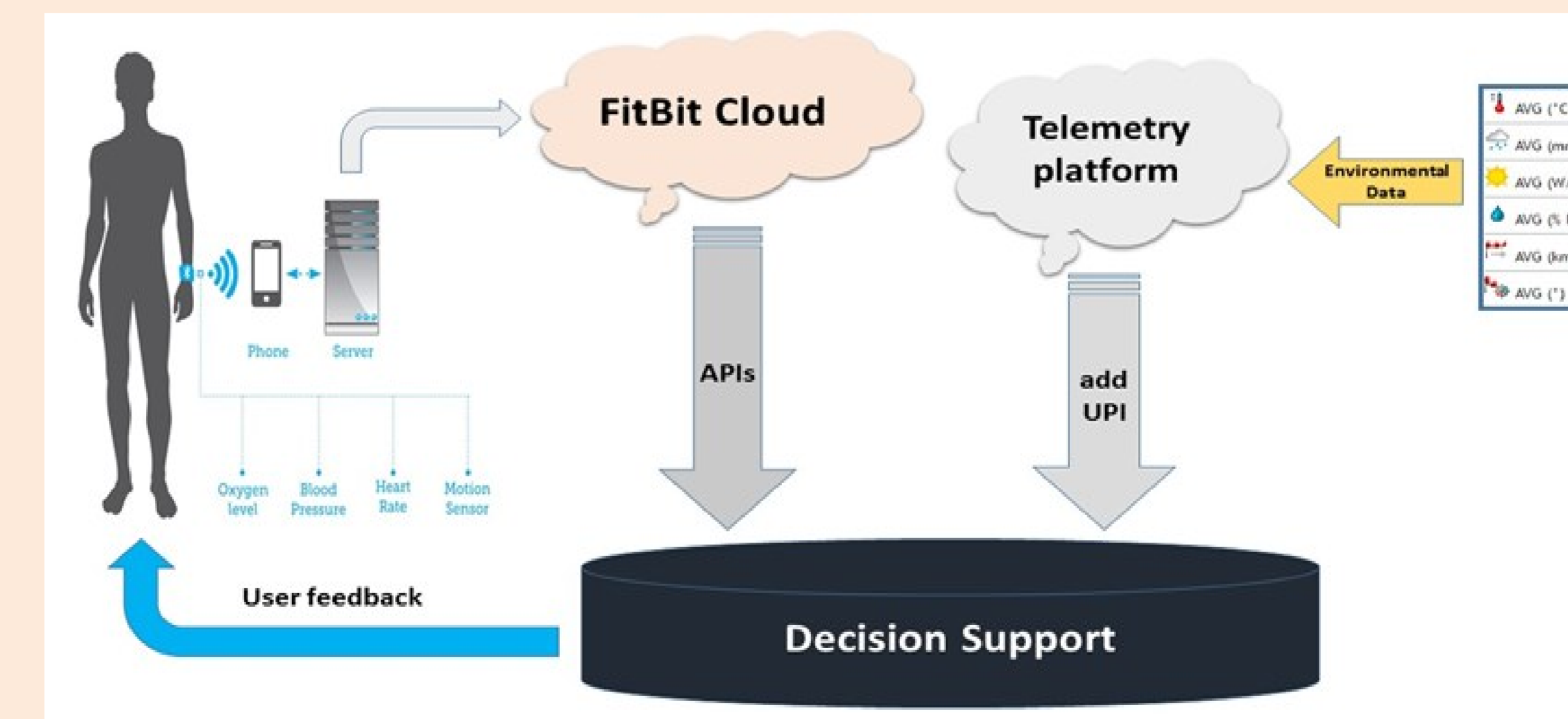


Figure 1. Wearable data collection system

An ecosystem of wearable devices carrying both innovative as well as existing sensors of physiological parameters is introduced for data collection and extraction of fitness, movement, activity, sleep, stress, psychology and health metrics.

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## Conclusion

The final goal of this project is to enable faster post-surgical recovery and to facilitate monitoring athletes' health and performance through the use of wearable IoT devices. The wearables are embedded in an ecosystem of devices to enable data collection and AI is used to develop the algorithms and assess performance, fitness and health.