

# HealthyPi v3

## Vital Sign HAT for Raspberry Pi

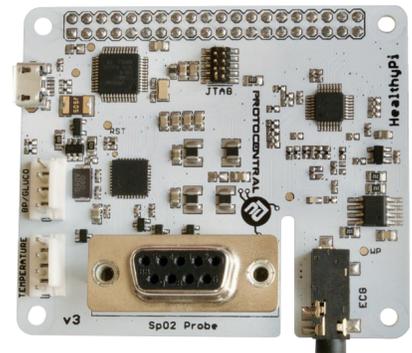
### Product Overview

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## Description

Crowd Supply HealthyPi v3 Vital Sign HAT for Raspberry Pi is an open-source, multi-parameter, full-fledged vital sign monitoring HAT for the Raspberry Pi or standalone use. Ideal for students or researchers interested in incorporating human vital signs into projects. HealthyPi can work as a patient monitor for regions of the world where medical care is limited and the cost of a conventional patient monitor is prohibitive. This board is useful prototyping device for medical device designers and can be integrated into systems with minimal guesswork. The HealthyPi uses open-source software that provides an easier off-the-shelf interface to stream and record data. Build custom functionality right into the software.



## Features

- **Easy-to-use:** simple, highly integrated design results in ease of manufacturing, more reliability, and lower cost
- **Flexible:** designed with not just one application in mind, but a variety of other applications
- **Ready for the Internet of Things:** with built-in Wi-Fi and Bluetooth capability
- **Open Source Hardware:** all hardware schematics, layout, and BOM will be available on Github
- **Open Source Firmware:** Atmel/Microchip ATSAMD21 microcontroller with an ARM Cortex M0 core
- **Open Source GUI Software:** allows creation of any kind of desktop application with Java code

## Kit Contents

- HealthyPi v3 PCB
- Three-electrode cable with “button” connectors on one end and stereo connector on the other end
- Finger-clip Spo2 probe with “Nellcor-compatible” DB9 connector
- Cable-mounted digital skin temperature sensor with stainless steel contacts
- 20 Single-use disposable ECG electrodes (Covidien Medi-Trace)
- HAT mounting kit with headers and screws

## Specifications

- ECG and respiration front-End: Uses the TI ADS1292R 24-bit analog front-end with SNR of 107dB
- Pulse oximetry: Uses TI AFE4400 Pulse Oximetry front-end with integrated LED driver and 22-bit ADC
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- Temperature: Uses Maxim MAX30205 digital body temperature sensor for skin temperature sensing
- Main microcontroller: Atmel ATSAMD21 ARM Cortex M0 - compatible with Arduino Zero
- Interfaces: Raspberry Pi 40-pin header (UART pins connected), USB CDC device, extra UART connector provided for connecting an external blood pressure module
- Programmability: Arduino Zero Bootloader preloaded
- IoT functionality: Can use the Raspberry Pi's Wi-Fi interface to communicate with a TCP client for telemedicine applications or using an MQTT client for continuous logging applications
- GUI Compatibility: Uses processing Java-mode (compiles on MacOS/Windows/Linux/Linux-ARM platforms)
- Firmware compatibility: Compiles with Arduino or Atmel Studio
- Dimensions (board only): 65x56.5x6mm
- Weight: 100g

## Powering Up HealthyPi

HealthyPi takes power from the 5V power present on the Raspberry Pi's 40-pin expansion header. Depending on the application, power the Raspberry Pi + HealthyPi in the following ways:

- Plug in a 5V USB power adapter. Ensure that the power supply is a good quality ISOLATED supply.
- Use a mobile USB power bank to power-up the Raspberry Pi (recommended, since it's inherently isolated from mains).
- Use the new Battery HAT to power the Pi in standalone applications where the display is not necessary. The battery HAT uses a Li-Ion 2000mAH rechargeable battery and steps it up to the required 5V. To charge the battery, just plug it into a USB wall adapter or any USB port.



## Mouser Part Number(s)

[cs-healthy-pi-01](#)

To learn more, visit <https://www.mouser.com/new/crowd-supply/crowd-supply-healthy-pi/>