Smart Health Watch – User Guide for Community Agents

Introduction

This guide helps community agents understand, operate, and maintain the Smart Health Watch.
 It is designed to assist in monitoring blood pressure, heart rate, and oxygen levels in vulnerable populations.

Hardware Overview (Simplified)

- **Inflatable Air-Cuff Strap** – for blood pressure measurement.

- **Micro Air Pump** – automatically inflates the cuff.

- **Pressure Sensor** – detects blood flow changes.

- **Sound Sensor** – captures Korotkoff sounds for systolic and diastolic pressure.

- **Optical Sensors** – continuously measure heart rate (BPM) and SpO_2.

- **Display (OLED or e-Ink)** – shows alerts and results (optional).

- **Audio Output** – provides spoken instructions.

- **Physical Buttons** – Power, Assistance, Emergency.

- **Microcontroller** – ESP32 or Arduino Nano.

- **Radio Transmitter** – sends alerts without internet.

- **Battery** – USB-C rechargeable or AAA batteries for budget models.

- **Protective Case** – durable and waterproof.

How to Use the Watch

Before Starting

- Charge the watch fully before first use.

- Turn on the watch using the power button.

- Ensure it connects to the medical base via radio (if available).

Measuring Blood Pressure

1. Watch alerts: "Time to measure your blood pressure. Please relax your arm."

2. Micro pump inflates the cuff.

3. Pressure and sound sensors record systolic and diastolic values.

4. Results are displayed and stored locally.

5. Data is sent to the medical server when a connection is available.

Checking Heart Rate and SpO$_2$

- Optical sensors continuously monitor heart rate and oxygen levels.

- Alerts trigger via vibration, LED, or audio if values are abnormal.

Sending Data

- Data is automatically sent to the medical server when a connection is present.

- **Assistance Button**: sends non-urgent help requests.

- **Emergency Button**: sends immediate priority alerts with high-risk readings.

Maintenance and Cleaning

- Clean the watch weekly with a soft, dry cloth.

- Avoid water immersion (except waterproof case) and extreme temperatures.

- Recharge battery when below 20% or replace AAA batteries if applicable.

- Perform a reset if the watch stops responding.

- Update firmware through the app regularly.

Troubleshooting

- Watch does not turn on: charge at least 30 minutes.

- Bluetooth not connecting: check phone settings.

- Inaccurate readings: clean sensors and tighten strap.

- Contact technical support if problems persist.

Safety and Battery Tips

- Do not disassemble the watch.

- Use only certified charging accessories.

- Keep away from children when not in use.

- Dispose of electronic components according to local rules.

Figures (Illustrative Icons)

- **[Battery Icon]** – shows battery status.

- **[Arm Icon]** – illustrates proper cuff placement.

- **[Heart Icon]** – indicates heart rate measurement.

- **[Alert Icon]** – represents emergency alerts and notifications.