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## Abstract

Prolonged systemic inflammation is associated with the development of chronic inflammatory diseases, making continuous monitoring essential. Daily measurement of inflammatory biomarkers can enhance disease tracking and enable earlier intervention (1).

Current wearable technologies focus mainly on vital signs and are unable to directly detect biochemical markers related to infection and inflammation. To address this limitation, the proposed innovation is a non-invasive wearable watch designed for early infection detection through continuous sweat analysis. By combining chemical gas sensing with physiological parameters and wireless data transmission, the watch enables real-time monitoring, early risk identification, and proactive intervention. Its low-cost, portable design supports continuous use and scalable deployment in healthcare and field environments.

## Attachment



## Problem & solution

### Problem:

- Infection detection is reactive
- Invasive procedure to take blood
- Blood waste

### Proposed Solution:

- Proactive, automated, infection detection
- Noninvasive infection detection

### Benefits:

- Early infection detection
- Faster medical intervention in the field
- Lower healthcare costs
- Noninvasive and no blood waste

## Innovation idea description

This innovation introduces a non-invasive wearable watch for early infection detection through continuous sweat analysis. The system targets biochemical inflammatory biomarkers rather than relying solely on vital signs. By integrating chemical sensing with physiological data and wireless communication, it enables real-time monitoring and early risk detection in a low-cost, wearable form.

## Market size

- Over **1 billion** people are affected by major infectious diseases annually (2.3)
- In 2026, the global wearable sweat sensor market is valued at roughly **\$2.8 billion** (4.5)
- **Why?** Sweat is now recognized as the "**new blood**" for non-invasive monitoring (6.7.8)

## product development scope

- Detecting inflammatory chemicals such as **CRP fragments, IL-6, TNF- $\alpha$  and VOC**
- Enable wireless data transmission with centralized dashboards
- Interpreting the combined data to evaluate infection presence and severity

## Innovation development

- 01 Advance wearable watch for detecting Infectious biomarkers
- 02 Wireless data transmission

## Intellectual property patent

- The project currently does not have an intellectual property patent
- The **next phase** focuses on project validation