

# Construction of a Sensor Prototype for eHealth Applications

*Proposta de Projeto*

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## 1 Objectives

A Body Sensor Network can sense health parameters directly on the patient's body, allowing 24/7 monitoring in an unobtrusive way. To study the relation between temperature variations and women health conditions, such as ovulation period, this proposal considers the construction of a new intra-vaginal sensor for temperature monitoring too.

The main challenges of such intra-body sensor are low power consumption for unattended operation, user's comfort and ease-to-use. As a result the sensor must follow several restrictions related with its dimensions and materials used, while features the needed wireless interfaces. Several approaches were proposed, from mobile device-based approaches to more powerful hardware such as a personal computer.

This proposal aims the construction of a miniaturized intra-body sensor prototype for e-health applications. This prototype should be tested and validated in a real environment, where collected results should demonstrate the feasibility of the approach.

The main objective of the proposal is a new intra-body sensor for e-health applications. To attain the main objective, the following partial objectives are defined:

- Intra-vaginal sensor prototype development for e-health applications
- Ensure that prototype is user-friendly
- Autonomy of the prototype and veracity of the measured values
- Adding portability on the sensor prototype using wireless technology (easily activated or not)
- Development of applications to do test and validate the solution

## 2 Tasks

**T1** Study of the related literature about the topic

**T2** Study about available hardware related with the topic

**T3** Development and test of a new prototype in breadboard

**T4** Miniaturization/optimization of the new functional prototype

**T5** Test and validation of the proposal (including possible adjustments)

**T6** The writing of the project report

### 3 Work plan

**T1** 1 month

**T2** 0.5 month

**T3** 1 month

**T4** 1 month

**T5** 0.5 month

**T6** 0.5 month

### 4 Technical Requirements

Computer networks, microcontrollers, and storage systems.

### 5 Academic Requirements

Programming and computer networks.

### 6 Difficulty degree

Difficulty.

### 7 Expected Results

- 1 project design of the sensor circuit
- 1 sensor prototype
- 1 project report

### 8 Contacts

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