

# Internship/Master Thesis: Development of a mechatronic device/system for innovative mouth health detection

<https://www.icdrachten.nl/vacatures/internship-master-thesis-development-of-a-mechatronic-device-system-for-innovative-mouth-health-detection/>



**Bedrijf:** Philips

**Locatie:** Drachten

**Opleidingsniveau:** HBO/ WO

**Periode:** Onbepaalde tijd

**Stage:** Ja

Are you the enthusiastic, talented graduate(s) Biomedical engineering and/or Mechatronics engineering we're looking for?

You will be joining the Innovation Team Oral HealthCare R&D department at Philips

Drachten. An impactful multi-disciplinary team of experienced and passionate professionals, that works with internal and external teams from all over the globe. You get the opportunity to work on an innovative method and device for mouth health detection to improve the consumer's mouth health.

### **Problem description of assignment**

Develop a proof of concept in several stages for a product to improve the consumer's mouth health with an innovative mouth health detection method.

Main subjects of the assignment:

□ Biomedical engineering oriented:

- o Proof the feasibility, capabilities, and limitations of the detection method, both in vitro as in vivo.
- o Determine the possible and beneficial user interactions with a device/system containing such a detection system.
- o Determine the system specifications for a device/system comprising the detection and interaction methods defined.
- o Proof the user benefits of such a system and/or device

□ Mechatronics oriented:

- o Define design requirements, specifications and constraints for the mechatronic device.
- o Design and build test devices for both in vitro and in vivo tests.
- o Design and build final prototype for the device/system to be developed as a product.
- o Those designs will require the application of:  
Light (LEDs), light sensor systems, optics, CAD design, 3D model making, microcontrollers, electronics, signal processing algorithms for IMU and optical sensors, like autocorrelation and synchronous detection. Prototype building possibly with e.g. Python, embedded python, C/C++, Arduino, etc.

The exact assignment(s) can be further discussed and defined by the students themselves in collaboration with

our team. You are in the lead!

Please note that the subject is highly confidential and requires signing of NDAs.

Presentations might need to be

adapted in case they are required to be presented to a general audience.

### **We are looking for:**

One or two Master graduation students (40 - 45 ECTS) who are pursuing Biomedical engineering and Mechanical engineering or Robotics.

To succeed in this role, you have the following skills and experience:

- Affinity with the biomedical and consumer field.
- Professional skills in English (written and verbal).
- Team player, passionate about results and people.
- Hands on mentality and result driven.
- Likes to do research, execute experiments and make prototypes.
- A solid background in the above-mentioned subjects.
- Students open to learn a lot of new competences, like technical subjects, research, development, consumer research, international cooperation in a large-scale company etc.
- Able to work mainly on site (Drachten)

### **You will be part of:**

In Drachten you'll find one of the largest innovation sites of Philips globally. With over 2000 colleagues from

over 35 different nationalities, it's an inspiring environment for you as a young talented intern. At Philips

Drachten some of the best consumer product developers in the world work together to create innovative

products with excellent end-user experience.

### **Our offer**

Philips Drachten could be the start of your promising career, with lots of opportunities to develop yourself

locally or internationally in different sectors of our company. At Philips you work for an employer whose

activities have a major positive impact on people all over the world. You also get:

- Opportunity to strengthen your capabilities and knowledge.

- Dedicated substantial support and guidance from an experienced supervisor and support from several professionals and departments.
- You will receive an internship allowance.
- Within Philips you get the opportunity to expand your professional network.

### **Contact**

For questions about the requirements of your university for external graduation assignments, contact your university supervisor.

After approval from your university supervisor, you can contact Philips for further questions regarding the procedure or application:

Peter Bremer, M.Sc.El.Eng.

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When applying, your CV should include a section on your ambition, as you see it now, for at least the coming 3 -5 years.