# System for monitoring houseplants

# Get a Green Thumb

## Graduate

**Denis Plinio Enrico Zanetti**

**Marco Bognar**

**Definition of Task:** Not everyone has a green thumb. However, with the help of a plant monitoring system, the care of plants can be considerably simplified. The aim of this bachelor thesis was to develop a production-ready prototype for measuring soil moisture in compliance with the specifications. The aim was to create a robust, maintenance-free, cost-effective and self-explanatory system for the optimal irrigation of potted plants.

**Approach / Technology:** In order to meet the requirements, the development focus was on simplicity and price, whereby the system could only be successful through innovative approaches. To enable sustainable use, the device is powered by a solar cell. Part of the sensor unit is the capacitor printed on the circuit board, which has to be inserted into the ground once for commissioning. As soon as sufficient sunlight is available, the system wakes up and works independently.

As different plants require different soil moisture, it is possible to adapt the device to the specific plant. The system relies on the transmission of a code by means of wireless communication, in order to configure the device using a smartphone, laptop or tablet.

By scanning the QR code, you are redirected to the website where the desired plant type can be selected. As soon as the device is in operation, it provides information about the moisture status of the soil by means of two LEDs.

**Conclusion:** All MUST requirements were met. The solution presented here is cost-effective, robust and maintenance-free. In addition, many potential improvements were identified that could be implemented in a follow-up project.

**PCB front and back without solar panel**
Altium Nexus
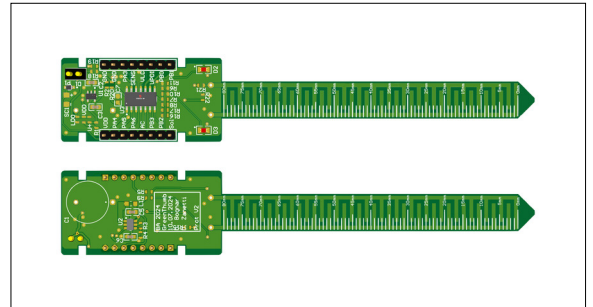


**QR-Code to the website for device programming**
https://genqrcode.com/
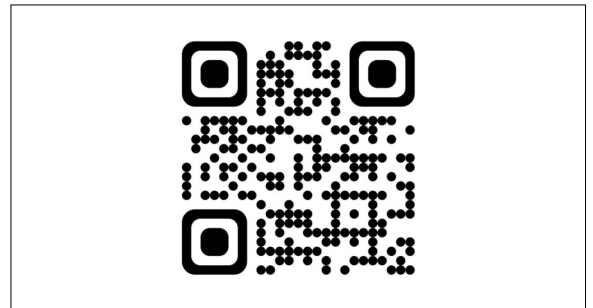


**Prototype in action**
Own presentment



## Advisor
**Prof. René Pawlitzek**

## Co-Examiner
**Prof. Guido Piai**

## Subject Area
**Electronics and Control Engineering, Information and Communication Systems, Computer Science**

## Project Partner
**Adlos AG, 9496 Balzers, Liechtenstein**

OST