



# IoT Provisioning Firmware and Interface Development

Innovative Sensor Project – Informatics Project Study (IDP)

## About SoilSpy

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SoilSpy is a Munich-based start-up developing a nanoelectronics-based sensor system, which precisely detects the concentration of elements in liquids. Employing this technology in agriculture, Farmers can analyse the concentration of multiple specific nutrients precisely, quickly, cost efficiently, and directly on field. Through optimal fertilization according to the analysis results of the nutrient levels and therefore needs of the plants, yield can be maximized while minimizing the usage and costs of fertilizer and sustainably reducing the pollution of ground water.

Would you like to contribute to the development of a leading-edge, nanoelectronic-based sensor system, work self-sufficiently within a strong team and take with us the first step towards the elimination of ground water pollution? **Then you should join us: SoilSpy**

### Your Tasks

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- Review existing electronics and software and get familiar with the technology
- Setup a CI/CD system
- Develop firmware based on TI-RTOS to interface all sensors on the board
- Connect the board to an MQTT server via SSL and publish all sensor data

### Your Learnings

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- Learning experience in an early stage start-up from first prototype to market
- Contributing to leading-edge research and technology in a professional and strong team
- Ability to set-up a complete and novel sensor system
- Understand embedded systems and sensor electronics

### Your Profile

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- First experience in C/C++
- Experience in RTOS is a plus
- Interest in IoT and/or security
- Interest in high-tech sensors
- Interest in working with the TI Simplelink platform and CC32XX processors

## Hence SoilSpy

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If you have gained some programming skills already and would like to employ these in an exciting project creating something of long-term and economic value, you should definitely join us. We do not only offer a challenging project but also insights into a leading-edge solution straight from the latest research findings in Nanotechnology. Currently, we are working with all efforts on a first portable prototype in order to test the system on-site and make adjustments in regard to environmental factors and customer needs. For this we need you and your skills!

But that is not all, besides the soil analysis device we are working on two more projects building a Smart Gardening sensor and an agricultural weather station. Therefore, you will gain extensive knowledge while enjoying flexible working hours, an open culture and no hierarchies. Moreover, we are always looking for responsible, motivated and knowledgeable people to expand our team.

Please get in touch with us at [info@soilspy.de](mailto:info@soilspy.de)

We would like to get to know you and looking forward to hearing from you!