

## To Whom It Concern

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## Experience Certificate for S. M. Firoj Mahmud

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S. M. Firoj Mahmud, born on the 20th of August 1992 in Barisal, Bangladesh, was a research assistant with the department of sustainable communication networks of the University of Bremen, Germany.

Between the 1st of September 2021 and the 31st of December 2022, Firoj was working on the MoleNet project (molenet.org) – a platform for environmental monitoring. In this period, Firoj was involved into

- Analysis of the previous versions of MoleNet regarding possible improvements
- Definition of the requirements for the next generation of MoleNet
- Selection of the components for the next generation of the system board, especially the microcontroller and peripherals like the SDI-12 interface
- Analysis and comparison of low-energy power supply circuits
- Analysis and estimation of the expected very low power requirements of the complete board using an STM32 microcontroller.
- Evaluation of available radio interfaces and their power requirements
- Design of the new PCB layouts in Eagle and KiCad
- Evaluation of the compatibility of the used hardware components regarding software environments, namely Arduino and MicroPython
- Testing and evaluating the low-power sleep modes of the microcontroller.
- Documentation of the results

Firoj worked independently and delivered very good results in the complete area of the system design from the hardware and software point of view. He is a good team player, and very easy to work with. He expressed self-motivation and has a solid technical background.

If you have any questions, please do not hesitate to contact me directly.

Kind regards

Prof. Dr. Anna Förster

