Hardwarepraktikum Internet-Technologien

Comprehension Questions of Task 4: Transmission of the sensor data

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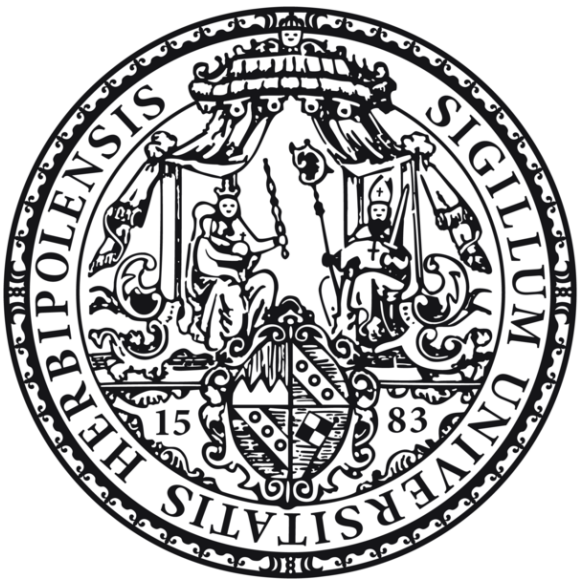

Julius-Maximilians-Universität Würzburg

Chair of Computer Science III

A project report submitted by **group 11**

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Summer term 2022

May, 2022

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4. Transmission of sensor data

4.1. Comprehension questions

1. In this exercise, the temperature data was sent directly via TCP without any further encoding. No protocol was used on the application layer. Why could this become a problem? For example, think of a scenario with multiple sensors. Are there any security issues?

A problem that we would have would be for example the control in the sending of packets, since to be sending information from different devices, we could cause congestion in the server (In this case, our PC).
The security problem is that since it is not encrypted, if the packets are intercepted, the attacker can easily read the information sent.

2. Why is TCP used for sensor data transmission? Why not UDP?

Because TCP dynamically adapts the transmission rate to network conditions, using it implements so-called flow control to avoid receiver overload, and congestion control to regulate the load on the entire network. This is useful in this exercise, since information is constantly being sent periodically, and this could lead to a network collapse.

3. Which tasks did the Python Socket API or the operating system relieve you of? In other words: which functions would you be missing if you had worked directly on layer 3 (IP, but no TCP as transport layer)?

Error control, loss of reliability, since the protocol guarantees that all data is transmitted in its entirety and that the receiver can reconstitute it in the correct order, and connection control, since TCP is connection-oriented and allows reciprocal communication between two endpoints by means of the so-called triple handshake.