

Lightning detection system for IoT

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Abstract

This thesis is focused on currently utilisable technology in the field of Internet of Things, focused on application in Smart City. Part of its content is a survey on available networking solutions suitable both for devices with access to grid power and those with limited energy resources. A selection of data transfer and processing methods is also included together with an outline of commonly measured environmental parameters and their measurement principles.

In the implementation part an atmospheric discharge detection system is being developed. The system is based on integrated lightning detection chip AS3935. It is controlled by an ARM microcontroller. Because of little detailed documentation much of the AS3935 chip properties had to be discovered experimentally. With regard to this fact the platform was connected to the RaspberryPI embedded computer. This allowed to monitor considerable amount of data in real time. After tuning the system was modified for usage with a modem allowing Internet access through LoRaWAN network.

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