

SmartHome design and implementation

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Keywords. SmartHome, bootloader AVR, Arduino, python, Flask, embedded system, Debian.

Abstract

This work deals with the analysis of possibilities, design and implementation of SmartHome on AVR platform. The system is designed in the way it allow easy access to information and control of the house via the Internet. The system implemented in this work was tested on the real house. At this moment it is able to control air conditioning units (through IR) and ventilation (using control wires directly).

The sensor network is built with use of the RS-485 bus in half-duplex mode – only two data wires. For communication on the bus is used simple master-slave ASCII protocol. The web interface is implemented using Flask. The frontend is interconnected with SmartHome backend using PostgreSQL.

Moreover, this work also detailly describes the creation of the bootloader for the AVR processor and the SmartHome server setting for the house on the Debian Linux distribution.

Acknowledgment

This work was successfully finished and defended with help of my supervisor Ing. Martin Danhel, Ph.D.