

Home Automation (Abstract)

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Home Automation, also known as Smart Home, is an umbrella term of many convenient functions like regulating room temperature, switching the lights or even water your garden.

Since this work demonstrates how to use secure smart home, the theoretical information is researched with the help of the Internet. In the end I present my own smart home projects with my own experience with them.

Home Automation is used for convenience but also for security reasons. This research paper gives a few example products like smart thermostats, smart blinds, smart lightning, smart doorbell, smart locks, smart cameras and window sensors.

Weak passwords are a security risk in any digital device. Multi-factor-authentication is great example of securing these devices. Examples for the factors are fingerprint, mobile phone verification, security questions or the user's location. Also separating smart devices in an own network is an enhancement of security.

There are many different protocols used in Home Automation, for example Z-Wave, KNX or Thread. This work only refers to the Zigbee protocol, because it uses low power and can achieve a huge range threw meshed networks, so that was the choice for me. The goal of Zigbee is connecting different devices of different manufacturers.