Concept for an IoT-based Electronic System for Smart Home Automation

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GOAL OF THE STUDY

The proposed concept is for wider accessibility of a larger number of households to a multifunctional and reliable home management solution with IoT devices. The main goal is to encourage more people to start using such types of systems, allowing them to lead more efficient and a comfortable lifestyle. The architecture of the proposed The system is summarized in Fig.1.
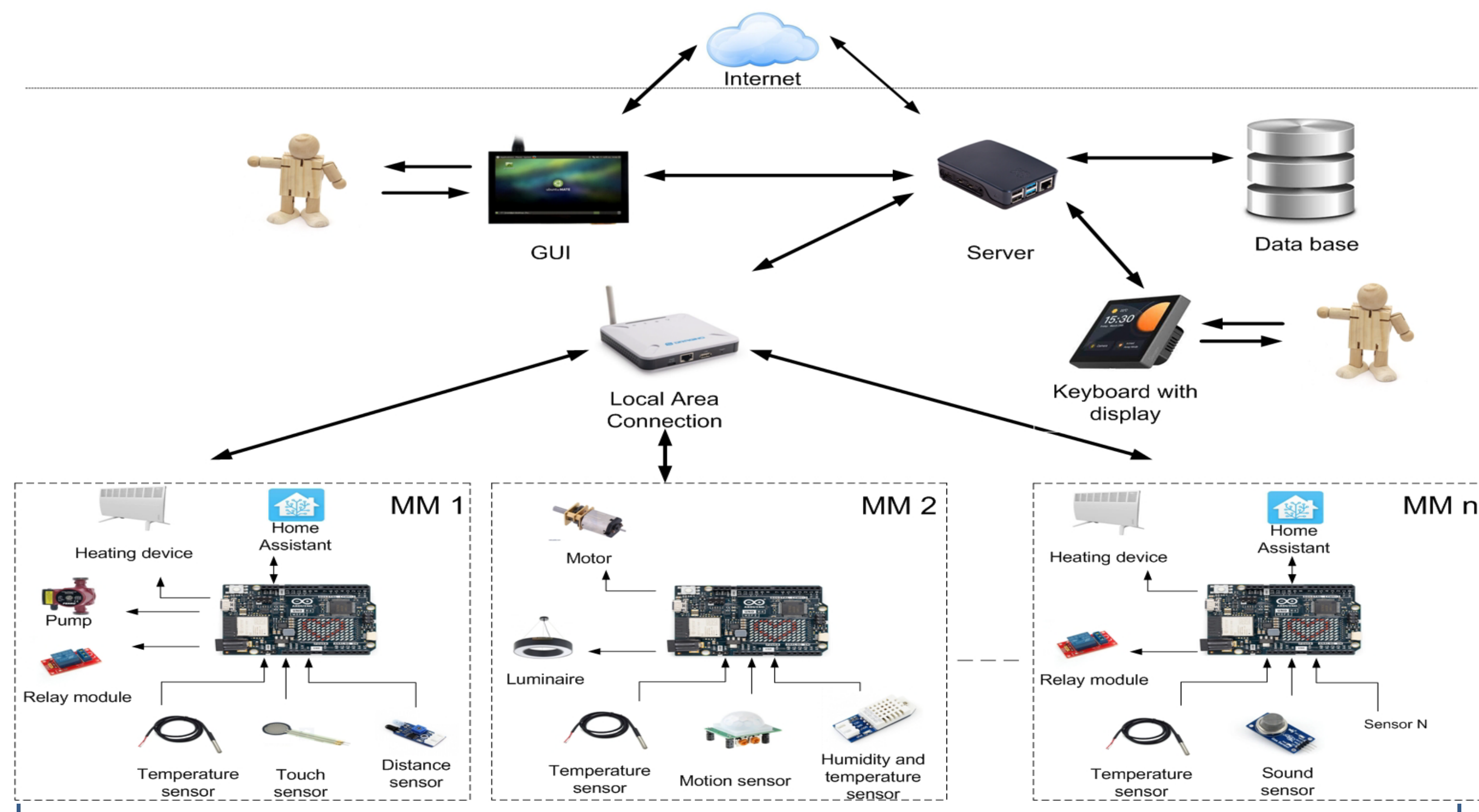

Fig. 1. Conceptual model of the proposed smart home system

The proposed solution is built on the basis of multiple independent control modules, a local server part where a database is stored, controlling software and communication between them. The control module (CM) includes a microcontroller, sensors for measuring various analog and digital quantities, and actuators (actuating mechanisms). The system can be constructed either with one CM, handling one or more quantities, or with numerous ones.

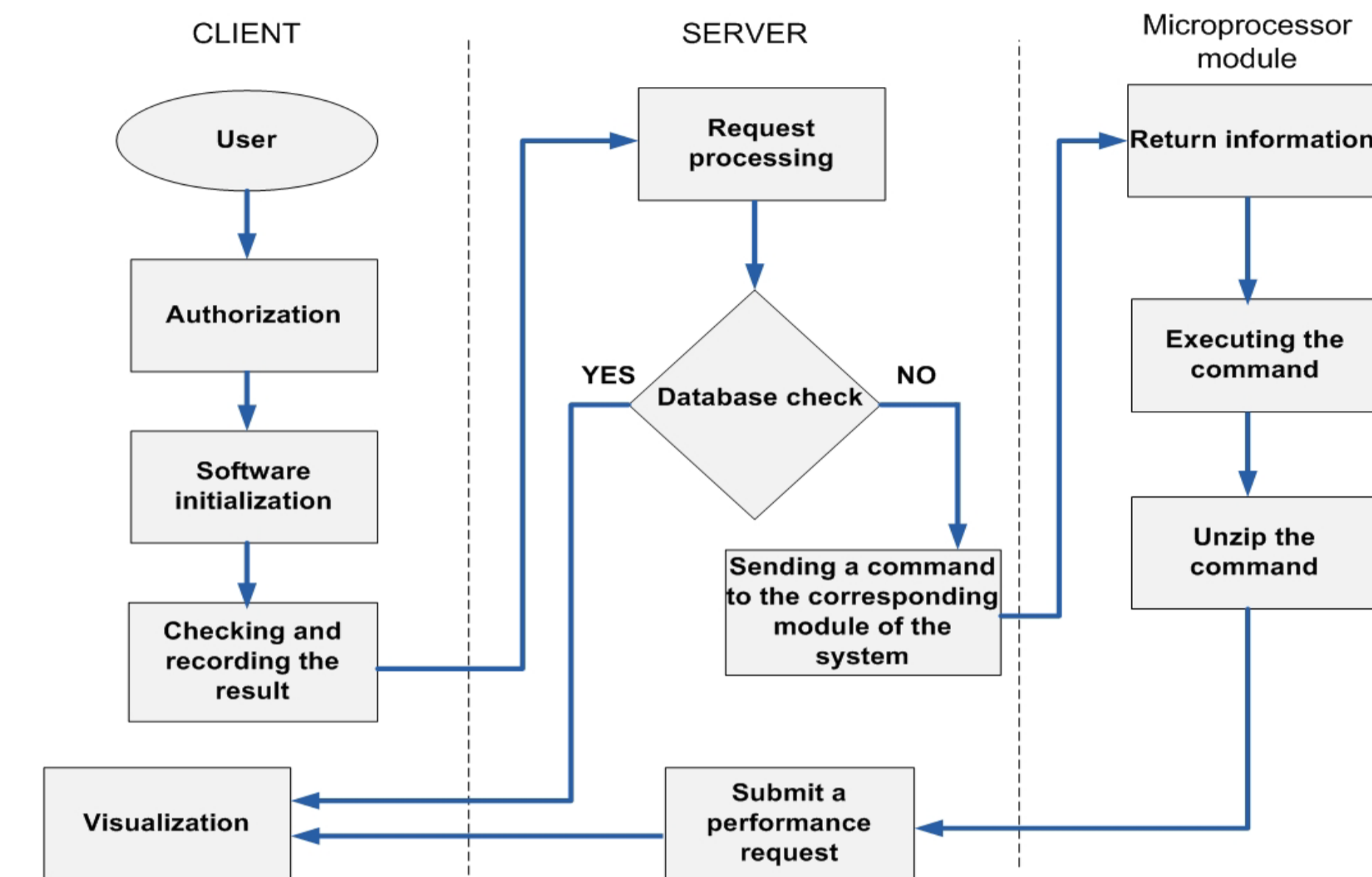## COMMUNICATION BETWEEN THE COMPONENTS IN THE SYSTEM

Fig. 4. Activity diagram of the proposed IoT-based Home automation system

Communication between individual modules of the system is summarized in Fig. 4 using an activity diagram. After user authentication through the graphical user interface (GUI), the software module initializes, allowing the user to set the desired functionality. Upon receiving a user request for information, performing a specific action or assigning a task, the request is sent to the server-side, where a check is performed in the database, depending on the type of the command.

CONCLUSIONS

The presented concept makes it possible to build a home automation systems from fully unified smart Devices. However, the concept itself does not exclude the ability to upgrade the system where the home is located It is controlled automatically, almost without user intervention. Yes achieve this, AI algorithms need to be embedded in at least one of the components of the system – either in the IoT modules or in the server.