Design of IoT Task Management System

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Abstract
Recently, Internet of Things (IoT) provides variable services. So, the number of users and smart devices utilizing IoT is also increasing. However, the traditional IoT system has a problem that when a variety of devices are added, a bottleneck or an overload of the server occurs.

In this paper, proposed system was IoT task management system. The system uses control board and server performs only simple communication and analysis. Also, the system manages of tasks such as remote control is carried out using the control board.

Index Terms: Control Board, Data Analysis, IoT, Remote Control, Sensor

I. INTRODUCTION
Recently, IoT can be used regardless of location and time by connecting objects to network[1,2]. When applied in the industrial field, IoT can be applied to fine or repetitive tasks that are difficult for people to control, so that they can work quickly and efficiently. When it is used in the home, it provides users with convenience such as remote control and monitoring[3,4].

Existing systems use centralized processing to process Tasks and data, which can lead to server overload if the number of devices connected increases. In addition it provides a service without considering the characteristics of users. Therefore, there is a problem that the convenience of the user and the accuracy of the operation are low.

II. SYSTEM MODEL DESIGN
The system uses the control board to process the device operation commands and sensor data. This reduces the server's data throughput and traffic, thereby reducing overhead. In addition, user's remote control command is collected to derive the most used device by time and transmits the derived result to the application to recommend the operation device to the user. This can reduce the burden on the server and provide customized services to users. Figure 1 shows the configuration of the proposed system.
In this paper, we proposed a Task control system that provides services by analyzing characteristics of users by reducing server throughput and communication volume using control board. The system uses the application to send remote control commands to the server when the user starts remote control. The server loads the remote control command received from the application into the database table and transmits the remote control command to the control board to operate the operation. In addition, the remote control command of the user stored in the database is used as analysis data to analyze the most used devices by time. This reduces server traffic and data throughput and can provide services considering user characteristics.

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REFERENCES


