

Implementation Of the RSSI-based Lighting Control System

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In this paper, we implement a lighting control system which uses the RSSI (received signal strength indication) of Wireless AP (Access Point). With a widespread increase in the deployment of mobile wireless systems and applications, the need for location aware services has increased manifoldly [1].

Figure 1 shows a lighting control system(LCS) and its structure with RLT(RSSI-based Lighting Terminal). LCS is composed of LCS control module and user RLT capable of controlling the illumination. A smart phone, for example, can be one of RLTs.

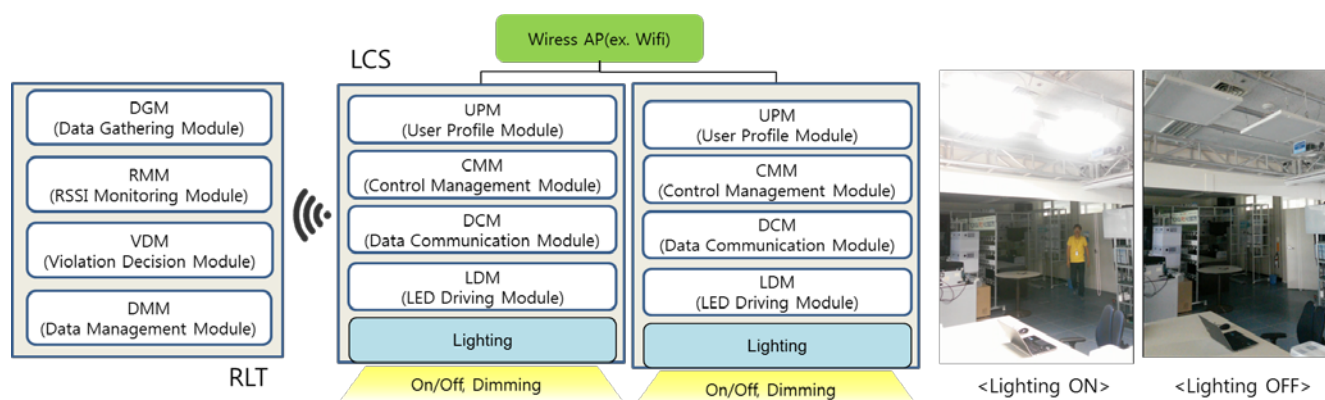


Fig. 1. Structure and implementation of the lighting control system

The user can be control lighting through the WIFI communication between the control module of LCS and RLT according RSSI value easily. The RLT is composed of four blocks. The DGM(Data Gathering Module) is periodically collects the SSID list and RSSI data of peripheral Wireless AP. The RMM(RSSI monitoring module) monitors the SSID list of nearby wireless AP to look for a specific SSID. If specific SSID exists in the search list, RLT monitoring module performs an operation for the connection to a specific Wireless AP. When the RLT is connected to a specific SSID, The VDM(Violation Decision Module) checks the violation about an RSSI threshold. The user can set the RSSI threshold value according to the environment. If RSSI value is not exceed the threshold, RLT transmits control message('lighting ON') to LCS. Otherwise, It sends the the lighting off message to LCS. The DMM(Data Management Module) saves the internal all data of RLT. The LCS includes four modules. The UPM(User Profile Module) registers the MAC Address information of the user terminal for the purpose of management of unique ID information. The CMM(Control Management Module) manages the data processing between the LCS modules. The DCM(Data Communication Module) performs function of communication with RLT or the other interface(ex. Application server). The LDM(LED Driving Module) performs the ON or OFF and dimming control of the lighting. In this paper, we propose an RSSI-based automating lighting control system for the home network environment. When a user with smartphone arrives in front of the home door, the user can automatically control lighting in the living room through RSSI data of AP in the home.

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References

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