18MCA62 - Technical Seminar Synopsis

"Control Systems for Home Automation"

In today's world automation has become the backbone of entire infrastructure, from smart homes to corporate infrastructure automation is used everywhere, IoT and Embedded systems plays an important role when it comes to automating the peripheral devices, these devices can further be controlled by the control systems which are connected to the cloud, from cloud applications the user can directly control the automation. From establishing the connection to the devices like lights, fan, AC, projector and TV then to controlling them in an automated way, there's an entire infrastructure behind it, these devices are connected to a control system, and a control system have media input device connected, which is supposed to take the input from the user, and the input can be fetched directly from a touch panel which is inside the home or corporate office.

The tools which are there in automation with Embedded systems are mostly physical electronic hardware devices, which are connected to each other over a network, all these physical devices use various networking protocol like SFTP, SSH, TCP and ICMP to communicate with each other. These devices have a firmware on it, the firmware acts like an interface between the hardware components and software modules for the devices, the firmware runs with C++, C or Assembly programming language, while the software on top of the firmware runs on C# .Net framework, Java spring or Visual Basic. All these components are secured by various encrypted layers which protect them against various cyber threats.

The ultimate goal which has to be achieved by Automation with embedded system is ease-of-living, from corporate offices to the homes the virtue of automation increases the quality of user experience, In today's India many schools in Delhi and other various states uses Embedded system based automation where the attendance system, the smart classes makes it easier to transfer the knowledge to the students, while in the corporate world the Embedded system automation is used to decrease the time spent on Standup meetings, scheduling the rooms, making it easier for employees to connect with devices at remote location and work on it.

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