

HOME AUTOMATION:

Home automation is a technology that allows you to control and monitor home appliances automatically or remotely using devices like a smartphone, tablet, or computer through the internet. With home automation, things like lights, fans, air conditioners, doors, security systems, and appliances can work automatically or be controlled from anywhere.

OBJECTIVES OF HOME AUTOMATION:

- Increase comfort
- Improve safety and security
- Save electricity and energy
- Provide remote access and control
- Make homes smart and intelligent

HOW HOME AUTOMATION WORKS:

- Sensors detect changes (motion, temperature, smoke, light).
- Sensor data is sent to a controller (hub or smartphone).
- The controller processes the data.
- Commands are sent to smart devices or actuators.
- Devices perform actions automatically or based on user commands.
- The internet/cloud allows remote access (controlling and monitoring home appliances from any location using the internet).

EXAMPLES OF HOME AUTOMATION:

- Lights turn ON automatically when you enter a room
- Fan turns OFF when temperature is low
- Door locks automatically at night
- Fire alarm sends alert to phone
- Control home appliances using mobile app

MAIN COMPONENTS OF HOME AUTOMATION:

SENSORS:

- Sensors detect environmental changes.
- Motion sensor – detects movement
- Temperature sensor – detects heat
- Smoke sensor – detects fire

CONTROLLER (BRAIN OF SYSTEM):

- Smartphone
- Tablet
- Central hub (like Arduino, Raspberry Pi)

ACTUATORS:

- They perform actions.
- Turn lights ON/OFF
- Lock or unlock doors
- Start motors or alarms

COMMUNICATION TECHNOLOGY:

- Wi-Fi
- Bluetooth
- Zigbee
- GSM

SMART DEVICES:

- Smart lights
- Smart fans
- Smart AC
- Smart security cameras