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## 🔐 1. Anti-Theft Alarm System 2500

Abstract: Detects unauthorized access or movement and sounds an alarm.

How it works: PIR or vibration sensor detects motion → Microcontroller triggers buzzer or sends SMS.

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## 🕹️ 2. Auditorium Controlling System Using IR

Abstract: Controls lights and fans in an auditorium using IR remote. 3000

How it works: IR receiver decodes signals → Arduino toggles relays connected to appliances.

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## 🌱 3. Automatic Plant Irrigation System 2500

Abstract: Automatically waters plants based on soil moisture level.

How it works: Soil moisture sensor → Arduino checks value → Turns water pump ON/OFF.

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## 🚉 4. Automatic Railway Gate Control Using IR 2500

Abstract: Prevents accidents by automatically closing/opening railway gates.

How it works: IR sensors detect train → Arduino controls gate motor via relay.

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## 🏦 5. Bank Security System with IR

2500

Abstract: Enhances bank security by detecting intrusions with IR.

How it works: IR beam interrupted → Microcontroller triggers buzzer + GSM alert.

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3500

## 🌿 6. Embedded Greenhouse Automation System

Abstract: Automates greenhouse monitoring and controls temperature/humidity.

How it works: DHT11 + Soil sensor → Arduino controls fan, pump, and lights.

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## 🔥 7. Fire Detection System 2900

Abstract: Detects fire using flame/temperature sensors and alerts user.

How it works: Flame + Temp sensor → Arduino triggers buzzer or message via GSM.

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## 💨 8. Gas Leakage Detection System 3000

Abstract: Detects gas leaks and triggers a safety response.

How it works: MQ2 sensor → Microcontroller detects gas → Activates alarm + shuts valve.

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## 🌡️ 9. Temperature-Based Fan Speed Control 3000

Abstract: Adjusts fan speed according to room temperature.

How it works: LM35 sensor → Arduino uses PWM to control fan speed.

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## 💡 10. Indoor Light Controlling System

2500

Abstract: Automatically controls room light based on ambient light and occupancy.

How it works: LDR + PIR → Arduino turns lights ON/OFF.

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## 🔢 11. Intelligent Object Counting System 2800

Abstract: Counts objects moving through a sensor path.

How it works: IR sensor detects passage → Arduino increments count → Displays on LCD.

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## 📺 12. IR-Based Appliance Control System 2700

Abstract: Operate home appliances using a TV remote.

How it works: IR receiver decodes remote signals → Arduino triggers relays.

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## 🌡️ 13. Min & Max Temperature Recorder 2800

Abstract: Records and displays highest and lowest temperature readings.

How it works: LM35 sensor → Arduino stores min/max in memory → Displays on LCD.

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## 🌃 14. Night Light Saver 2600

Abstract: Automatically switches lights ON at night and OFF during day.

How it works: LDR detects light → Arduino controls relay/light accordingly.

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## 🏥 15. Patient Monitoring System 3000

Abstract: Tracks patient vitals and alerts caregiver on abnormal values.

How it works: Temp, pulse sensors → Data to Arduino → Sends SMS or displays on LCD.

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## ⚡ 16. Power Station Monitoring and Controlling 3500

Abstract: Continuously monitors power station parameters like voltage and temperature.

How it works: Sensors gather data → Arduino sends to IoT platform → Alerts if abnormal → Controls breakers/relays.

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## 🚦 17. Traffic Control System Based on Density 3500

Abstract: Dynamically adjusts signal timing based on traffic density.

How it works: IR/Ultrasonic sensors count vehicles → Arduino sets green/red light duration → Updates every few seconds.

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## 📏 18. Ultrasonic Distance Measurement 2500

Abstract: Measures distance to objects using sound waves.

How it works: Ultrasonic sensor (HC-SR04) → Sends sound pulse → Calculates distance based on time delay.

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## 👥 19. Visitor Counter Cum Display System Using IR

Abstract: Counts people entering/exiting and displays total count.

How it works: Two IR sensors at door → Arduino increments/decrements counter → Displays on LCD.

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## ☁️ 20. Weather Monitoring System 3000

Abstract: Tracks temperature, humidity, and pressure in real time.

How it works: DHT11 + BMP180 sensors → Arduino displays and sends data to cloud (e.g., ThingSpeak).

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## 📱 21. Smart Remote for Controlling Appliances via Android 3000

Abstract: Controls lights/fans using smartphone Bluetooth.

How it works: Android app sends command via Bluetooth → Arduino receives and toggles relay.

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## ♿ 22. Virtual Nurse – Wheelchair Control via Android

Abstract: Allows patients to move wheelchair via mobile app. 3500

How it works: Android app → Sends movement command → Arduino drives motors via motor driver.

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## 🤖 23. Android Controlled Robot

3500

Abstract: Mobile robot navigated via smartphone app.

How it works: Bluetooth module on robot receives commands → Arduino controls motors accordingly.

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## 📢 24. Wireless Smart Notice Board 2500

Abstract: Displays messages wirelessly via Bluetooth or WiFi.

How it works: App or web sends text → Arduino receives → Displays on LCD/LED board.

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## 🕹️ 25. Accelerometer-Based Robot Controlled via Android 3500

Abstract: Controls robot movement by tilting phone.

How it works: App reads accelerometer → Sends orientation to Arduino → Motors move robot.

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## ✅ Projects 26–35

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## 🏠 26. Smart Home/Office Automation via Android

Abstract: Controls appliances using a smartphone for energy efficiency and convenience.

2800

How it works: Android app → Bluetooth/WiFi → Arduino receives command → Activates relays for lights, fans, etc.

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## 🔁 27. Smart Regulator for Fan Speed via Android 2800

Abstract: Allows precise control of fan speed using mobile app.

How it works: Smartphone sends speed level → Arduino uses PWM (via MOSFET or TRIAC) → Adjusts fan speed.

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## ⚡ 28. AC Motor Speed Controller via Android 2800

Abstract: Changes AC motor speed remotely via mobile app.

How it works: App sends command → Arduino controls TRIAC with phase-angle firing → Adjusts speed.

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## 🌆 29. Street Light Control via Smartphone 2800

Abstract: Remotely turn ON/OFF or dim street lights using a mobile app.

How it works: App communicates with NodeMCU/ESP32 → Relay module controls AC lights.

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## 🏥 30. Mobile-Based Patient Monitoring System 3500

Abstract: Tracks and reports patient vitals via smartphone interface.

How it works: Temp + pulse sensors → Arduino sends to mobile via Bluetooth/WiFi → App displays data.

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## 🏭 31. Industrial Parameter Monitoring via Mobile 3000

Abstract: Observes machine temperature, vibration, and voltage via mobile.

How it works: Sensors → Arduino/ESP32 → Sends real-time data to mobile dashboard using Blynk or custom app.

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## ✋ 32. MEMS-Based Gesture Controlled Robot 3500

Abstract: Robot movement controlled by hand gestures.

How it works: MEMS accelerometer detects tilt → Arduino maps gesture to direction → Controls motors.

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## 🚆 33. Intelligent Train Engine to Avoid Collisions 5000

Abstract: Detects nearby trains/obstacles to prevent collisions.

How it works: IR/Ultrasonic sensors in front → Arduino stops motor if obstacle too close → Optional GSM alert.

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## 🌱 34. Embedded Greenhouse Automation (Repeat) 4500

Abstract: Monitors and controls temperature, humidity, and irrigation in a greenhouse.

How it works: Sensors → Arduino → Controls fan, lights, and water motor → Display/logs values.

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## ⚡ 35. Substation Monitoring and Controlling 4500

Abstract: Tracks electrical substation health (voltage, temp) and sends alerts.

How it works: Voltage + current + temp sensors → Arduino → Alerts via GSM or sends data to IoT dashboard.

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## ✅ Projects 36–45

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## 🛒 36. RFID-Based Shopping Trolley 2600

Abstract: Automatically detects products added to a cart and shows the total bill.

How it works: RFID tags on products → Reader on trolley → Arduino calculates and displays price → Sends data to billing system.

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## 🧑‍🏫 37. Attendance System Using RFID 3200

Abstract: Automates attendance marking using RFID tags.

How it works: Student scans RFID card → Arduino logs UID → Sends time-stamped entry to display or cloud.

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## 🚗 38. IR-Based Car Parking System 3000

Abstract: Detects available parking slots using IR sensors.

How it works: IR sensors monitor slot occupancy → Arduino displays available slots on LCD or web page.

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## 🚉 39. Automatic Station Indication System for Railways 3000

Abstract: Announces and displays approaching station names automatically.

How it works: IR sensors track train movement → Arduino triggers pre-stored station names via speaker/LCD.

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## 📞 40. Appliance Control Using Mobile Phone (DTMF) 3000

Abstract: Turns ON/OFF appliances using phone keypad tones.

How it works: Call → DTMF module decodes tone → Arduino triggers respective relay.

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## 🌞 41. Microcontroller-Based Solar Tracker 3000

Abstract: Adjusts solar panel direction to track sun for maximum efficiency.

How it works: Two LDRs compare light → Arduino tilts panel using servo motors toward brighter side.

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## 🚗 42. Automatic Car Parking + Canteen Card System via RFID 4500

Abstract: Provides secured entry and tracks expenses with one RFID card.

How it works: RFID detects car → Opens gate → Deducts balance for parking/canteen.

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## 🌤️ 43. Wireless Weather Station Monitoring

3500

Abstract: Collects and transmits weather data wirelessly.

How it works: Temp, humidity sensors → Arduino + RF or WiFi → Sends data to central monitor/cloud.

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## 🚨 44. Intelligent System: Temp + Gas + Human Detection

3000

Abstract: Detects hazardous environments and human presence.

How it works: MQ2 + PIR + Temp sensor → Arduino classifies condition → Sounds alarm and sends notification.

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## 🌊 45. Automatic Dam Gate Control with Caution Alarm

3000

Abstract: Monitors water level and controls gate automatically.

How it works: Ultrasonic or water level sensor → Arduino opens/closes gate → Buzzer for overflow alert.

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## ✅ Projects 46–55

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## 📏 46. Microcontroller-Based Ultrasonic Distance Meter

Abstract: Measures the distance of objects using sound waves. 2800

How it works: Ultrasonic sensor (HC-SR04) sends pulse → Echo measured by Arduino → Distance calculated and shown on LCD.

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## 🔍 47. Metal Detection System

2800

Abstract: Detects presence of metallic objects.

How it works: Metal detector coil senses change in magnetic field → Signal to Arduino → Triggers buzzer or LED.

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## 🚧 48. Wireless Automated Toll Gate System

2800

Abstract: Automates toll collection using RFID.

How it works: RFID tag on vehicle → Reader detects → Arduino opens gate + deducts toll → Logs to system.

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## 🚨 49. PIR Sensor-Based Security System

2800

Abstract: Detects human movement for intrusion detection.

How it works: PIR sensor senses motion → Arduino triggers buzzer, light, or GSM alert.

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## 🚆 50. Intelligent Train Engine

3500

Abstract: Prevents train accidents via obstacle and station detection.

How it works: Ultrasonic + IR sensors detect stations/obstacles → Arduino slows/stops train motor.

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## 💡 51. Automatic Room Light Control with Visitor Counting 3000

Abstract: Automatically switches room lights based on number of people.

How it works: Two IR sensors → Arduino counts people in/out → Turns light ON/OFF based on count.

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## 🌿 52. Automatic Plant Irrigation System 2900

Abstract: Waters plants based on soil moisture level.

How it works: Moisture sensor → Arduino checks threshold → Turns water pump ON/OFF automatically.

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## 🌃 53. Automatic Street Power Saving System 2800

Abstract: Reduces street light energy usage based on motion and light level.

How it works: LDR + PIR sensor → Arduino dims or turns off lights when no motion is detected.

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## 🧪 54. Gas Detection System 2800

Abstract: Alerts users to dangerous gas levels in the environment.

How it works: MQ2 sensor detects gas → Arduino activates buzzer/relay → Sends alert if GSM/IoT enabled.

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## 🌡️ 55. Temperature-Based Fan Speed Controller

3000

Abstract: Adjusts fan speed automatically based on room temperature.

How it works: LM35/DHT11 sensor → Arduino varies fan speed using PWM or relay based levels.

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## ✅ Projects 56–65

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## ⏰ 56. Time and Temperature Display System

3800

Abstract: Displays real-time clock and room temperature.

How it works: DS3231 RTC + LM35/DHT11 → Arduino reads time & temperature → Displays on LCD or OLED screen.

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## 🚉 57. Unmanned Railway Gate Control System

3000

Abstract: Automatically opens/closes railway gate based on train arrival.

How it works: IR sensors detect train → Arduino controls servo motor → Sounds buzzer + opens/closes gate.

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## 🔐 58. Password-Based Door Locking System

2900

Abstract: Provides secure access using a keypad-based password.

How it works: 4x4 Keypad input → Arduino checks password → Unlocks door via servo or relay.

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## 💧 59. Automatic Water Level Indicator Cum Controller

Abstract: Monitors tank water level and controls the pump automatically.

How it works: Water level sensors → Arduino activates/deactivates pump → Displays level on LCD.

---

## 🚦 60. Density-Based Traffic Light Control System

2800

Abstract: Adjusts traffic signal timing based on vehicle count.

How it works: IR/Ultrasonic sensors count vehicles → Arduino dynamically changes light duration → Reduces traffic jam.

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## 🏠 61. Home Automation Using Mobile

2500

Abstract: Controls lights, fans, and other devices remotely via mobile.

How it works: Android app → Bluetooth or WiFi → Arduino controls relays connected to devices.

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## 🌊 62. Dam Level Warning Using GSM SMS

3500

Abstract: Sends SMS alert when water level crosses a set threshold.

How it works: Water level sensor → Arduino checks threshold → GSM module sends SMS to registered numbers.

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## 🌱 63. Soil Moisture-Based Irrigation System 4000

Abstract: Waters crops based on soil condition to conserve water.

How it works: Moisture sensor reads value → Arduino controls valve/pump → Alerts user via SMS/IoT.

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## 🚦 64. Traffic Jam Updates at Signals (Smart Signals)

Abstract: Alerts control room and commuters of traffic jams. 3500

How it works: IR/ultrasonic sensors detect jam → Arduino logs data → Sends updates to app/website using ESP8266.

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## 📲 65. Soil Moisture Controller with Mobile Alert

*(Duplicate concept, extended)* 4500

Abstract: Monitors soil moisture and notifies user via GSM when water is needed.

How it works: Moisture sensor → Arduino → Sends SMS if moisture < threshold → Activates pump if required.