

1. Autonomous Delivery Robot

- **Description:** Build an autonomous robot that can deliver items within a campus, hospital, or office environment.
- **Technologies:** GPS, LIDAR, AI for path planning, Motors, ROS.

2. Robotic Arm for Assembly Line Automation

- **Description:** Develop a robotic arm capable of performing repetitive tasks like sorting, picking, and placing items on an assembly line.
- **Technologies:** Servo Motors, Sensors, ROS, Machine Vision.

3. Gesture-Controlled Robot

- **Description:** Create a robot controlled using hand gestures via an accelerometer or camera-based recognition.
- **Technologies:** Accelerometer, Arduino, Servo Motors, Gesture Recognition.

4. Smart Agriculture Robot

- **Description:** Design a robot to perform automated agricultural tasks such as seeding, watering, and spraying pesticides.
- **Technologies:** AI, Sensors (soil moisture, pH), GPS, Machine Vision.

5. Swarm Robotics for Search and Rescue

- **Description:** Build a swarm of robots that can communicate and collaborate to search for survivors in disaster areas.
- **Technologies:** Wireless Communication (Zigbee), AI, Sensors, Autonomous Navigation.

6. Self-Balancing Robot

- **Description:** Develop a two-wheeled self-balancing robot that can maintain its balance while moving.
- **Technologies:** Gyroscope, Accelerometer, PID Control, Arduino/ESP32.

7. Robotic Waste Segregator

- **Description:** Create a robot that can automatically segregate waste into recyclable, non-recyclable, and organic categories.
- **Technologies:** Machine Learning, Computer Vision, Conveyor Belt System.

8. Autonomous Drone for Surveillance

- **Description:** Build an autonomous drone for real-time aerial surveillance and monitoring in large areas like farms or campuses.
- **Technologies:** GPS, Cameras, AI for Object Detection, Wireless Communication.

9. Human Follower Robot

- **Description:** Develop a robot that follows a human based on sensor inputs or camera recognition, useful for carrying loads.
- **Technologies:** Ultrasonic Sensors, Machine Vision, Arduino, Motors.

10. Line Follower Robot

- **Description:** Design a robot that can follow a path drawn on the floor, typically used in automated warehouses.
- **Technologies:** IR Sensors, Arduino, Motors, Motor Drivers.

11. Robotic Vacuum Cleaner

- **Description:** Create a smart vacuum cleaner robot capable of navigating rooms, cleaning surfaces, and avoiding obstacles.
- **Technologies:** IR Sensors, LIDAR, AI-based Navigation.

12. Exoskeleton for Physical Assistance

- **Description:** Build a wearable robotic exoskeleton that assists individuals with physical disabilities in walking or lifting heavy objects.
- **Technologies:** Motors, Sensors, Servo Mechanisms, Microcontrollers.

13. Robotic Arm for 3D Printing

- **Description:** Develop a robotic arm that acts as a 3D printer for additive manufacturing, capable of printing complex shapes.
- **Technologies:** Servo Motors, Arduino, Stepper Motors, G-code.

14. Autonomous Obstacle Avoiding Robot

- **Description:** Build a robot capable of detecting and avoiding obstacles in its path, useful in dynamic environments.
- **Technologies:** Ultrasonic Sensors, LIDAR, Autonomous Navigation Algorithms.

15. Robotic Fish for Underwater Exploration

- **Description:** Create a bio-inspired robotic fish capable of underwater navigation for exploration or research purposes.
- **Technologies:** Waterproof Servo Motors, Autonomous Navigation, Sensors for Water Conditions.

16. Robotic Bartender

- **Description:** Design a robot capable of mixing and serving drinks, either through voice commands or a mobile app.
- **Technologies:** Servo Motors, Sensors, Voice Recognition, Mobile App Control.

17. Robotic Chess Player

- **Description:** Develop a robot that can play chess by moving pieces on a physical chessboard, using AI for strategy.
- **Technologies:** AI, Computer Vision, Robotic Arm, Servo Motors.

18. Telepresence Robot

- **Description:** Build a robot that allows a user to remotely navigate and interact with people in different locations via video conferencing.
- **Technologies:** Video Streaming, Wireless Communication, Motors, Camera.

19. Robotic Exoplanet Explorer

- **Description:** Simulate a robotic explorer that could be used on other planets for terrain mapping, collecting samples, and sending data back to Earth.
- **Technologies:** Autonomous Navigation, AI, Solar Power, Sensors for Terrain Analysis.

20. Autonomous Grocery Cart

- **Description:** Design a smart grocery cart that follows the user around the store and helps in scanning and billing items as they are added.
- **Technologies:** Sensors, RFID, IoT, Autonomous Navigation.