Smart Robot Dog Project – Progress Checklist

This document outlines all key components and steps involved in building the advanced robot dog. Each feature includes a checkbox to track progress.

1. Test all components individually (Servo motors, MPU6050, RCWL0516, LCD1602, PCA9685 with servos)

2. Automatically maintain 0° tilt using MPU6050

3. Learn to keep a uniform pose while walking/running/jumping

4. Learn to walk, stand, sit, run, and jump

5. Avoid obstacles using two HC-SR04 ultrasonic sensors

6. React defensively if RCWL sensor detects approaching object

7. Navigate maze or rugged terrain like mountains/fallen sites

8. RPi + ESP32: Host a secure webserver showing telemetry (task, temperature, tilt data)

9. Advanced Webserver UI: Show 3D robot model, command logs, and prompt interface

10. Integrate spoken English commands via onboard NLP system

11. Preprogrammed motion options (dance, repeat last n moves, backflip, front flip, etc.)

12. Add modular top ports for external hardware (robotic arm, weather kit, surveillance, drone/missile launcher)

13. Final goal: Military-grade deployment for hostile environments (nuclear, flood, fire, etc.)