Robotics and Embedded Systems Laboratory (Under Development)

The **Robotics and Embedded Systems Laboratory** at Department of Electrical Engineering (Room No. 235/236), Sardar Patel College of Engineering, Mumbai is currently under development with funding from the **SPCE Alumni Association**. This facility will provide students with hands-on experience in designing, building, and testing robotic and embedded system solutions. It aims to foster innovation, research, and industry collaboration while equipping students with skills in automation, IoT, and microcontroller-based system development. The lab will also support interdisciplinary learning and participation in national and international robotics competitions.

Proposed Facility:
1. Major Equipment:
Microcontrollers & Development Boards – Arduino, Raspberry Pi, STM32, ESP32
Sensors & Actuators – Ultrasonic sensors, IR sensors, temperature sensors, accelerometers, gyroscopes, proximity sensors, DC motors, servo motors, stepper motors
Robotics Kits – Educational robotics kits (VEX Robotics, Turtle, AI-based kits)
Power Supply Units – Variable DC power supply, battery packs
Communication Modules – Wi-Fi, Bluetooth, Zigbee modules
3D Printer – For prototyping robotic components
Oscilloscopes & Multimeters – For circuit testing and debugging
Soldering Stations – For assembling electronic circuits
AI Testing Workstations – Equipped with high-end PCs for AI and CAD applications

Tools Sections:
Electronics Corner – Includes soldering stations, measurement tools, and testing kits
Mechanical Workstations – Equipped with power tools, workbenches, and a tool wall
CAD & Graphics Section – Advanced computers for 3D modeling and AI simulations
Safety Section – First aid kits, protective gear, and fire safety measures
Storage Section – Organized space for components, tools, and spare parts