Rack and Pinion with Servo Motor – Vertical Sliding Mechanism with Limit Switches

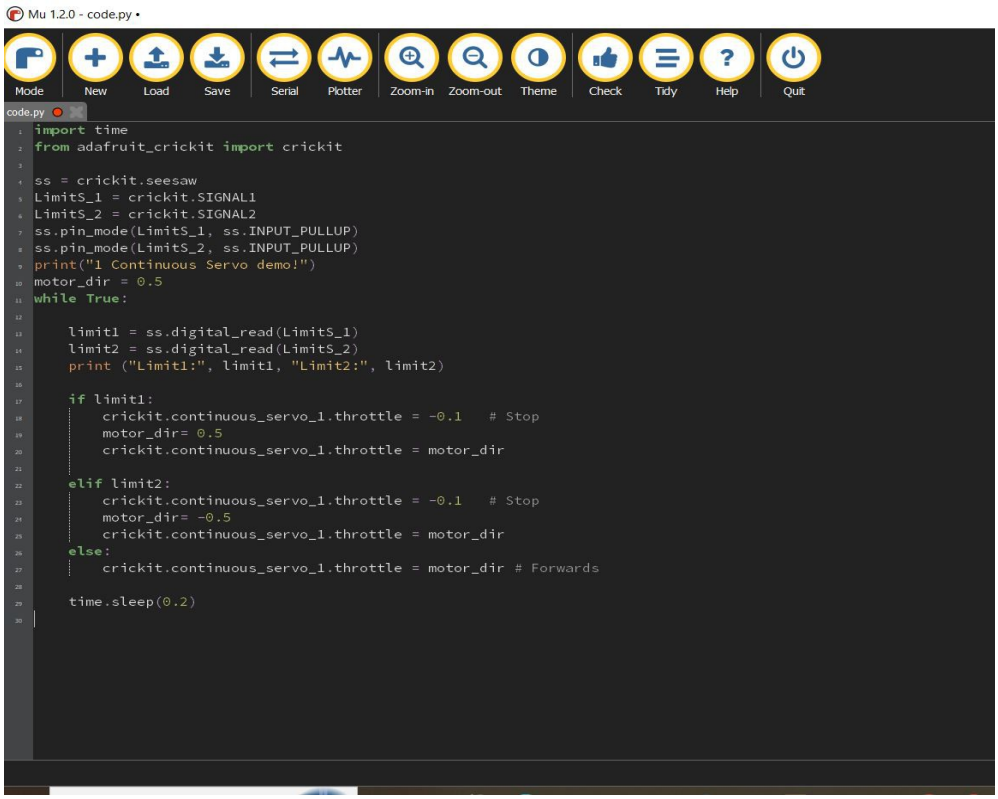
Step 1: Components Required

- MG995 Servo motor
- Rack & Pinion gear set
- Telescopic slide (for vertical guide)
- 2 × Limit switches (Top and Bottom)
- Arduino / CPX + Crickit controller
- Power supply (5–6V, 2A for servo)
- Jumper wires and breadboard
- Mounting base (wood/acrylic)

Step 2: Connect Components

- Fix telescopic slide vertically to guide the rack.
- Mount rack gear on the sliding plate of the slide.
- Attach pinion gear to the MG995 servo horn.
- Place **Top limit switch** at the upper end and **Bottom limit switch** at the lower end.
- Connect servo motor and limit switches to Arduino/CPX.

Step 3:Code



Step 4: Save & Run

- Save the code as an Arduino sketch and upload it to the controller.
- Rack will move **upward** until the top switch stops it.
- After delay, rack will move **downward** until the bottom switch stops it.