

Setting the Arduino pins

Switch pin 2 controlling micro switch pins

Switch pin 9 for electromagnet

Switch pin 10 for relay control

Initially, the system winds up by spinning for about three seconds. Following this, the wheel equipped with dowels will press down on the platform, which has a metal piece at the bottom and is latched onto an electromagnet.

Once the trash is detected by the microswitch, the electromagnet will be released, triggering the mechanism and causing the trash to be ejected. Subsequently, the motors will activate again to lower the platform, preparing it for the next launch

Wiring the Micro Switch

There's three pins on the switch:

COM (Common)

NO (Normally Open)

NC (Normally Closed)

Connect COM → Arduino GND

Connect NO → Arduino Pin 2

This setup ensures activation only when the switch is pressed.

Wiring the 5V Electromagnet

There's two wires on the electromagnet:

Positive (+)

Negative (-)

Connect the Positive (+) wire → Arduino Pin 9

Connect the Negative (-) wire → Arduino GND

Place a diode (1N4007) across the electromagnet terminals:

Cathode (white stripe) → Electromagnet Positive (+)

Anode → Electromagnet Negative (-)

Wiring the Relay Module for Two Motors

Relay has 3 pins:

VCC → Arduino 5V

GND → Arduino GND

IN (Relay Signal) → Arduino Pin 10

Connect the relay outputs to the motors:

Relay Normally Open (NO) → Motor Positive Terminals

Relay COM → External Power Source (5V)

Motor Negative Terminals → GND

There's a reason why we use a relay

The relay set-up ensures the motors receive higher current flow for stronger performance.
The relay in your system acts as a switch that controls when the two motors receive power.

Since Arduino alone cannot provide enough current for the motors, the relay allows the Arduino to safely control high-current devices like the two motors