**3D Object Rotation Product Showcase using Python**

**Code :- import turtle**

**import math**

**import time**

**# Setup screen**

**screen = turtle.Screen()**

**screen.bgcolor("white")**

**screen.tracer(0)**

**# Turtle settings**

**pen = turtle.Turtle()**

**pen.hideturtle()**

**pen.speed(0)**

**pen.pensize(2)**

**# Define Colors**

**body\_color = "blue"**

**window\_color = "green"**

**wheel\_color = "black"**

**rim\_color = "red"**

**outline\_color = "black"**

**# Define rotation helper**

**def rotate\_point(x, y, angle\_deg):**

**angle\_rad = math.radians(angle\_deg)**

**cos\_ang = math.cos(angle\_rad)**

**sin\_ang = math.sin(angle\_rad)**

**x\_rot = x \* cos\_ang - y \* sin\_ang**

**y\_rot = x \* sin\_ang + y \* cos\_ang**

**return x\_rot, y\_rot**

**# Body and parts of the car**

**body\_points = [(-100, -40), (-100, 40), (-60, 70), (60, 70), (100, 40), (100, -40)]**

**left\_window\_points = [(-60, 40), (-60, 65), (0, 65), (0, 40)]**

**right\_window\_points = [(10, 40), (10, 65), (70, 65), (78, 40)]**

**wheel\_centers = [(-70, -40), (70, -40)]**

**wheel\_radius = 30**

**# Draw polygon**

**def draw\_polygon(points, fill\_color):**

**pen.penup()**

**first = points[0]**

**pen.goto(first)**

**pen.pendown()**

**pen.color(outline\_color, fill\_color)**

**pen.begin\_fill()**

**for point in points[1:]:**

**pen.goto(point)**

**pen.goto(first)**

**pen.end\_fill()**

**# Draw wheel with spokes**

**def draw\_wheel(center\_x, center\_y, radius, angle\_deg=0):**

**pen.penup()**

**pen.goto(center\_x, center\_y - radius)**

**pen.setheading(0)**

**pen.pendown()**

**pen.color("black", wheel\_color)**

**pen.begin\_fill()**

**pen.circle(radius)**

**pen.end\_fill()**

**# Draw spokes**

**pen.color(rim\_color)**

**for i in range(6):**

**spoke\_angle = angle\_deg + (360 / 6) \* i**

**rad = math.radians(spoke\_angle)**

**x\_start = center\_x + radius \* 0.1 \* math.cos(rad)**

**y\_start = center\_y + radius \* 0.1 \* math.sin(rad)**

**x\_end = center\_x + radius \* 0.85 \* math.cos(rad)**

**y\_end = center\_y + radius \* 0.85 \* math.sin(rad)**

**pen.penup()**

**pen.goto(x\_start, y\_start)**

**pen.pendown()**

**pen.goto(x\_end, y\_end)**

**# Rotate and draw entire car**

**def rotate\_and\_draw\_car(angle\_deg):**

**pen.clear()**

**rotated\_body = [rotate\_point(x, y, angle\_deg) for x, y in body\_points]**

**rotated\_left\_window = [rotate\_point(x, y, angle\_deg) for x, y in left\_window\_points]**

**rotated\_right\_window = [rotate\_point(x, y, angle\_deg) for x, y in right\_window\_points]**

**rotated\_wheels = [rotate\_point(x, y, angle\_deg) for x, y in wheel\_centers]**

**draw\_polygon(rotated\_body, body\_color)**

**draw\_polygon(rotated\_left\_window, window\_color)**

**draw\_polygon(rotated\_right\_window, window\_color)**

**spoke\_angle = (angle\_deg \* 5) % 360**

**for wx, wy in rotated\_wheels:**

**draw\_wheel(wx, wy, wheel\_radius, spoke\_angle)**

**screen.update()**

**# Main loop**

**def main():**

**angle = 0**

**while True:**

**rotate\_and\_draw\_car(angle)**

**angle = (angle + 2) % 360**

**time.sleep(0.05)**

**main()**