cad2024 電腦輔助設計與實習

彈珠台設計及程式報告

組長：41223118 呂汶哲

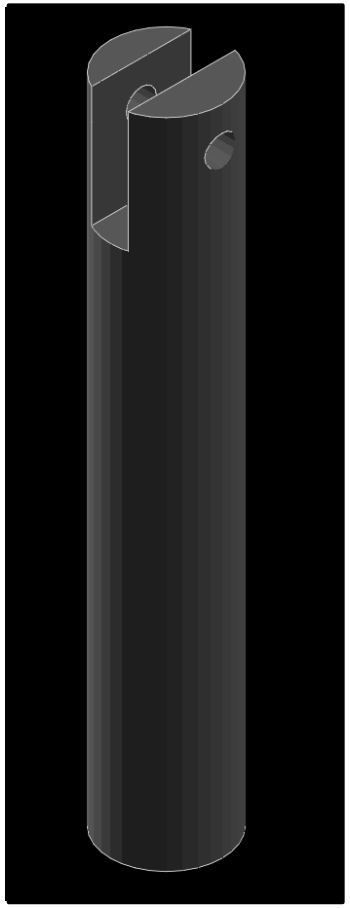
組員：41223134 陳冠杰

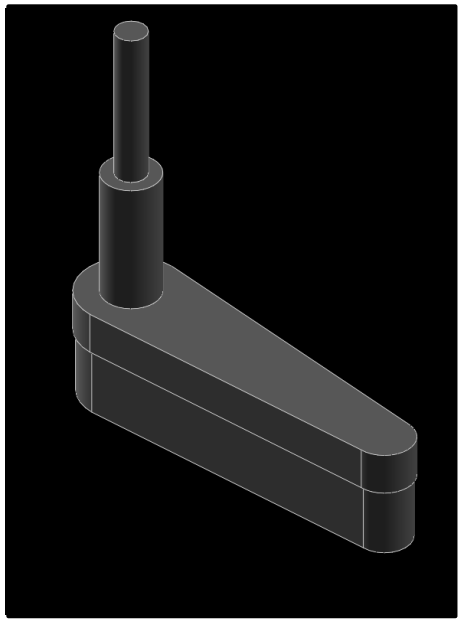
41223136 陳學儒

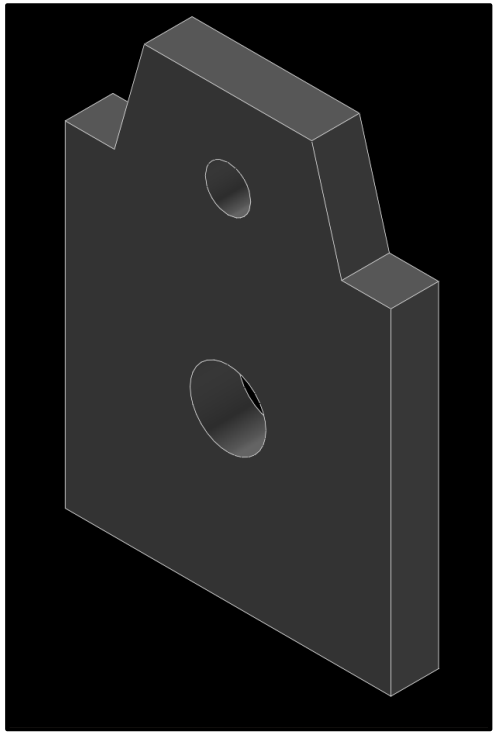
工作分配：

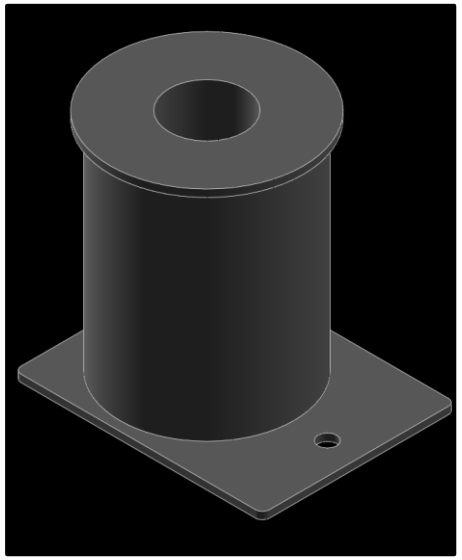
(零件繪圖分工)

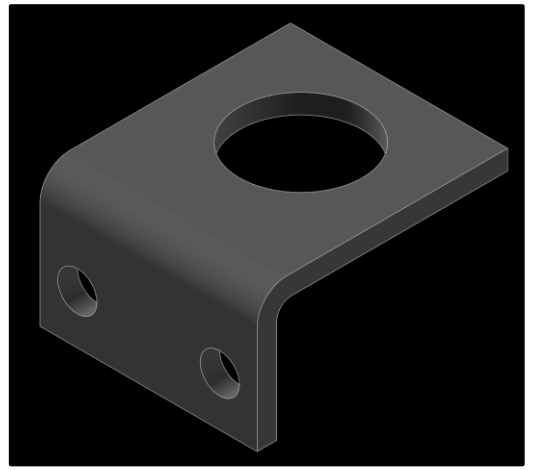
41223118 呂汶哲

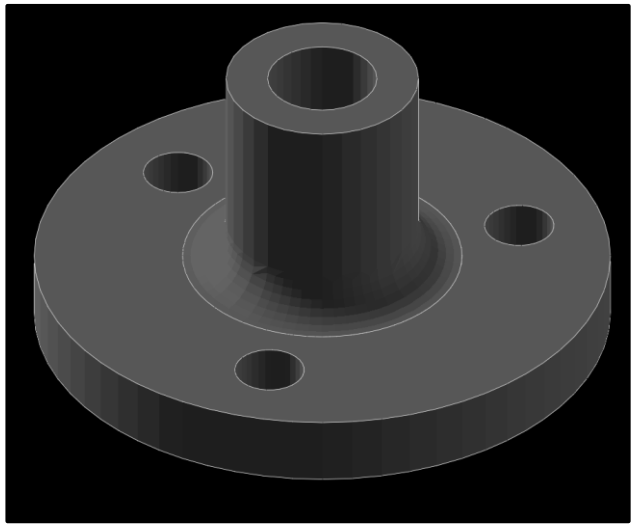








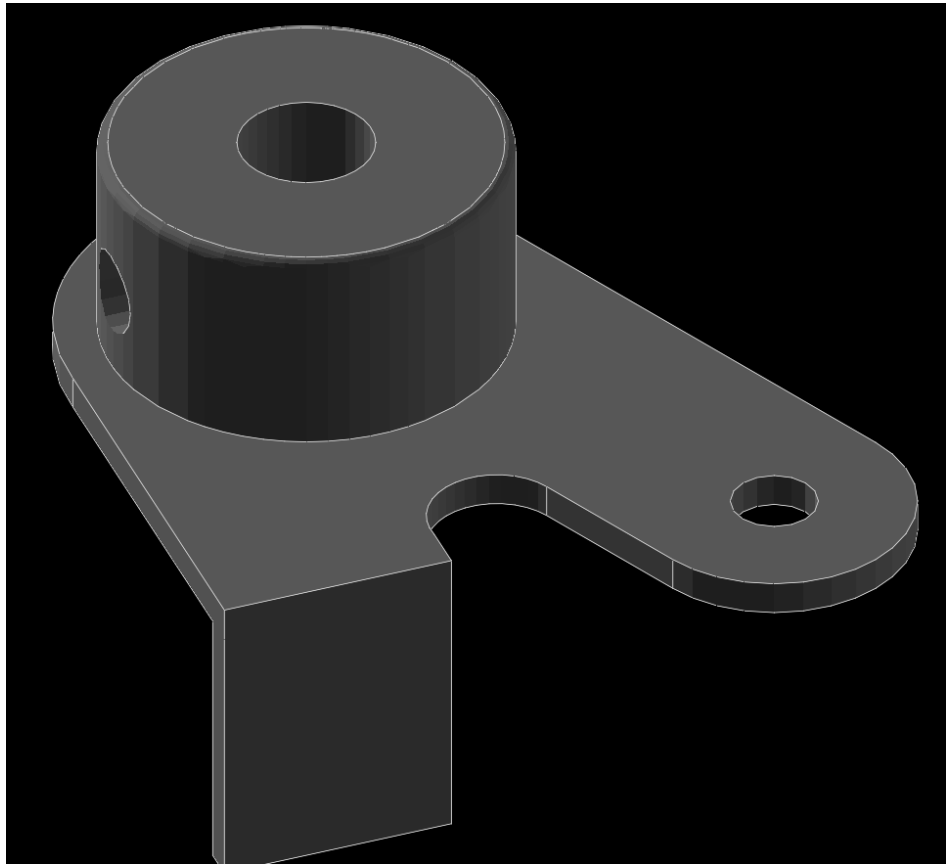


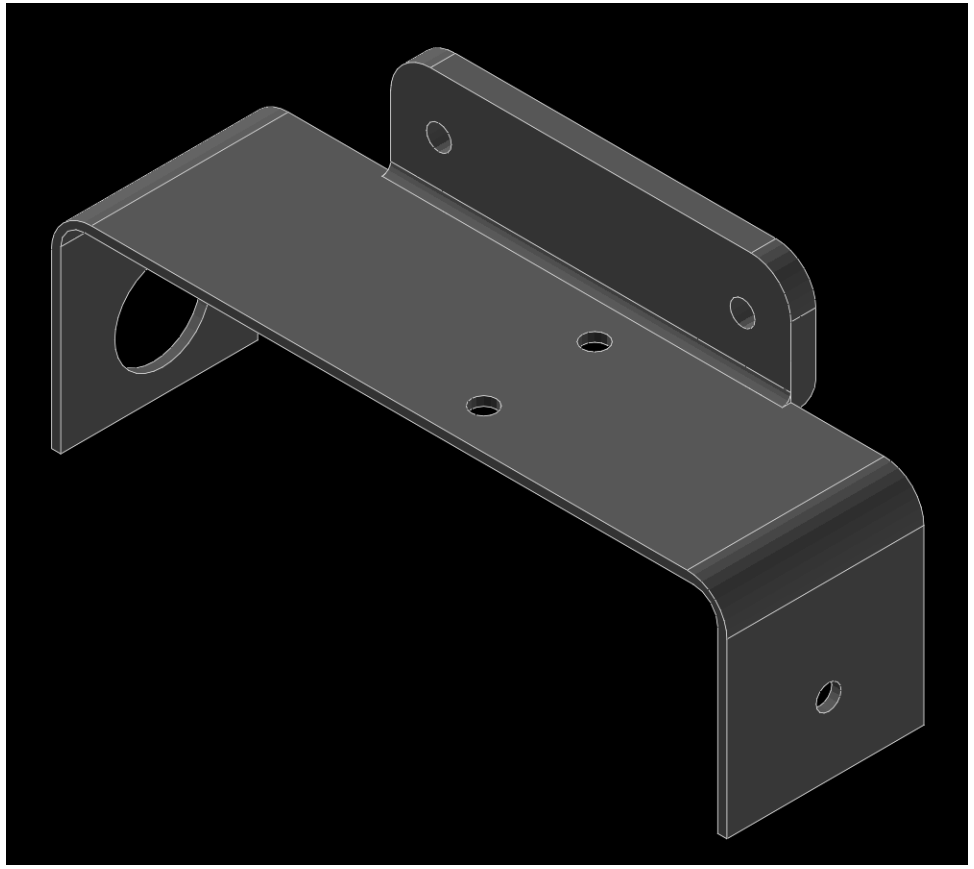


工作分配：

(零件繪圖分工)

41223134 陳冠杰

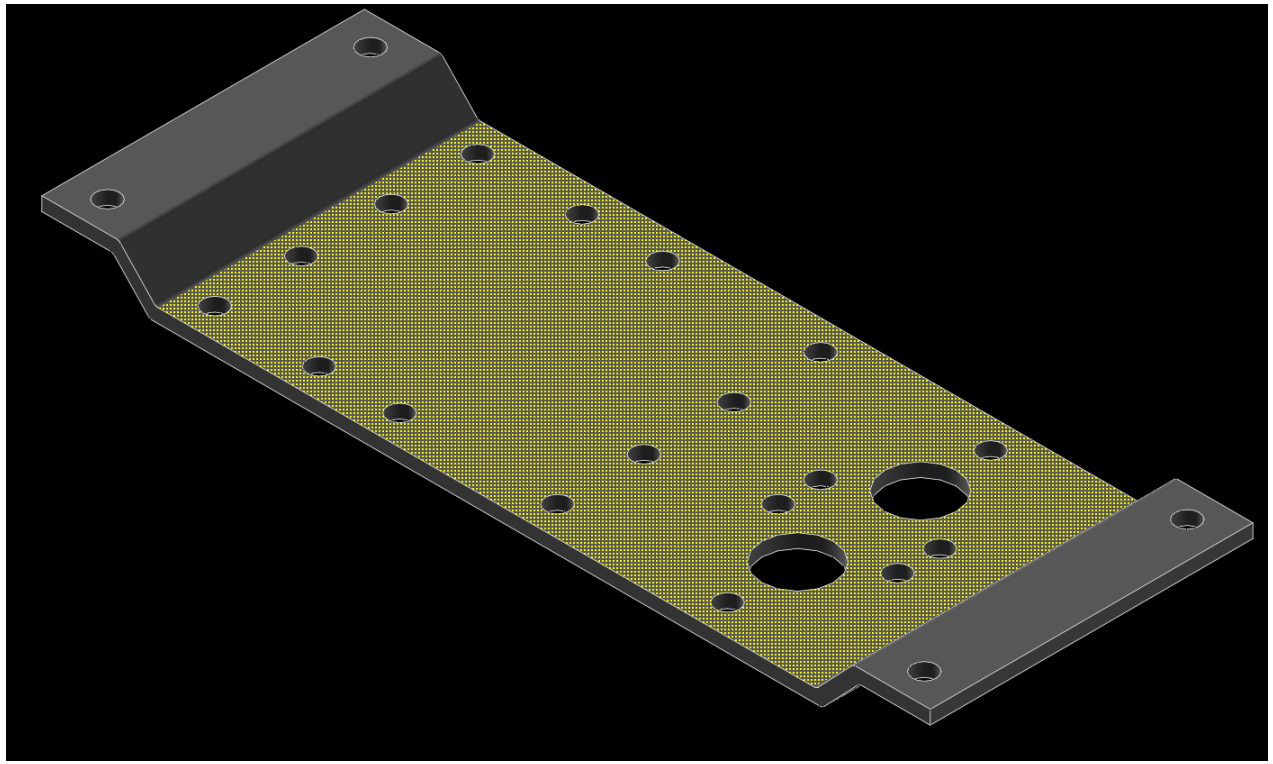


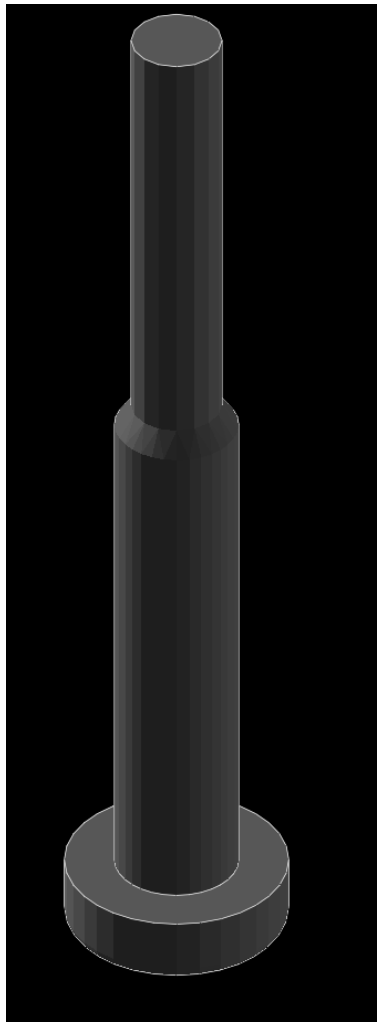


工作分配：

(零件繪圖分工)

41223136 陳學儒



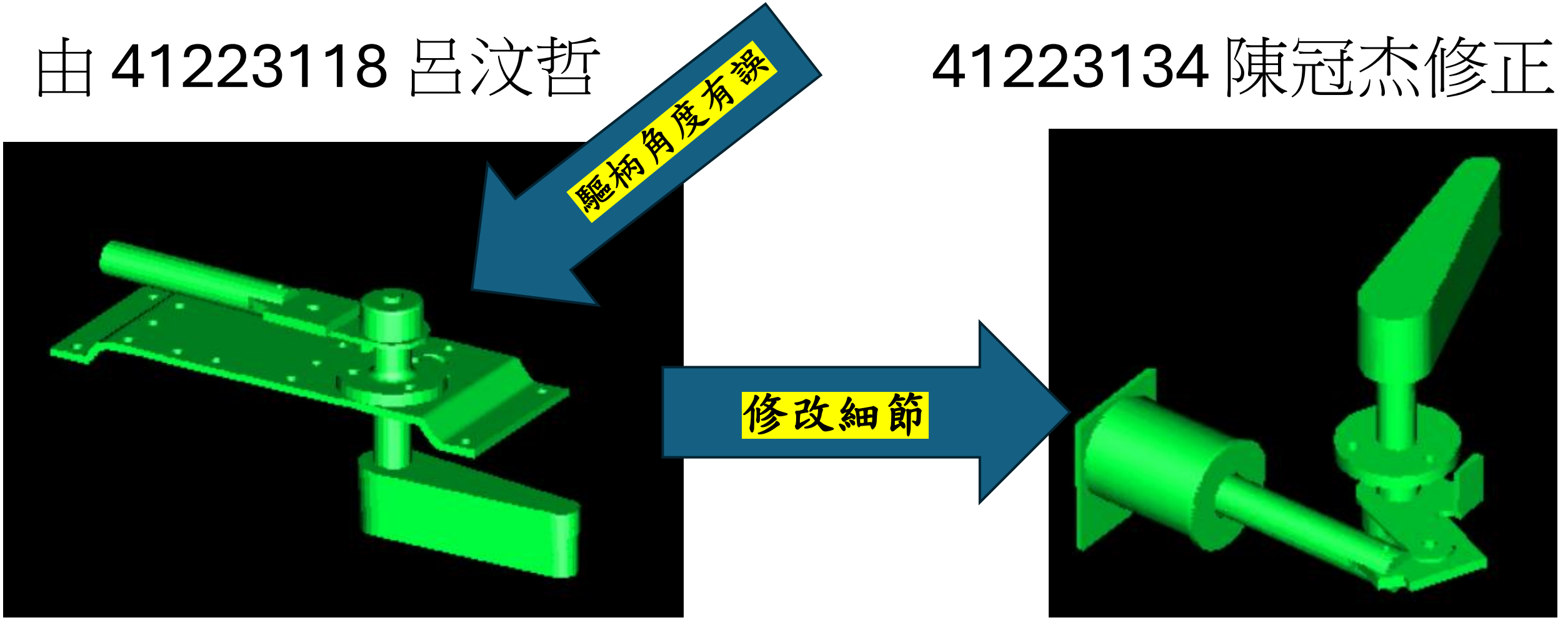


工作分配：

(零件組合分工)

由 41223118 呂汶哲

41223134 陳冠杰修正

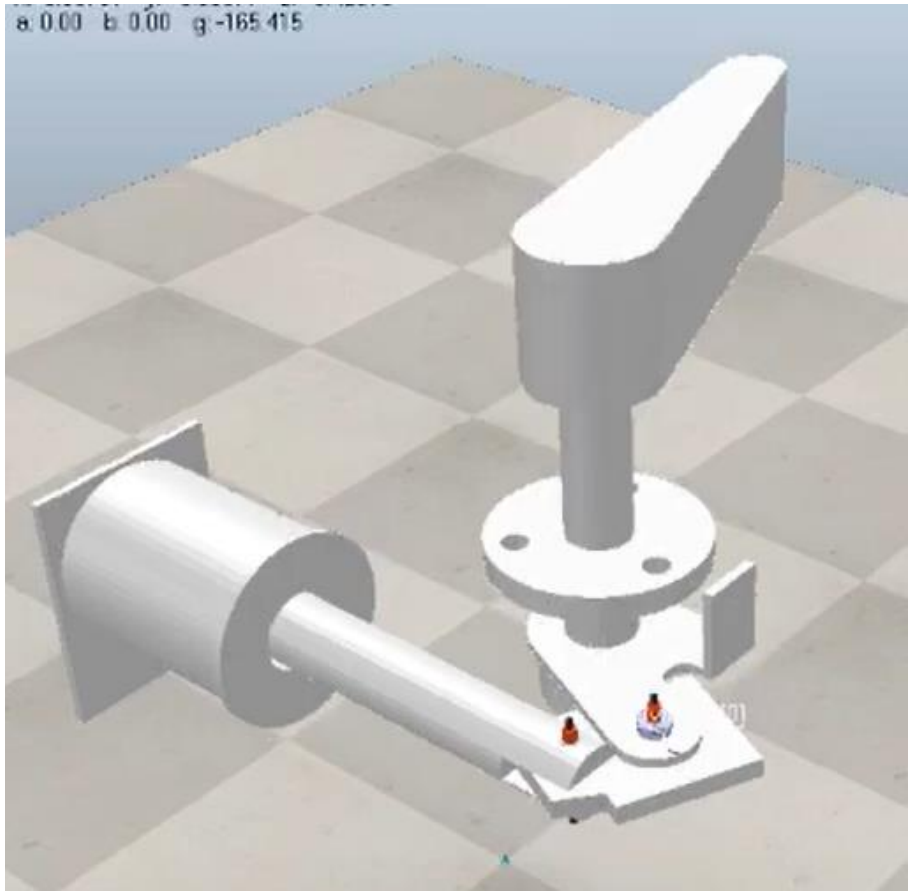


工作分配：

(程式模擬分工)

41223134 陳冠杰

右 Flippert 模擬+程式做動



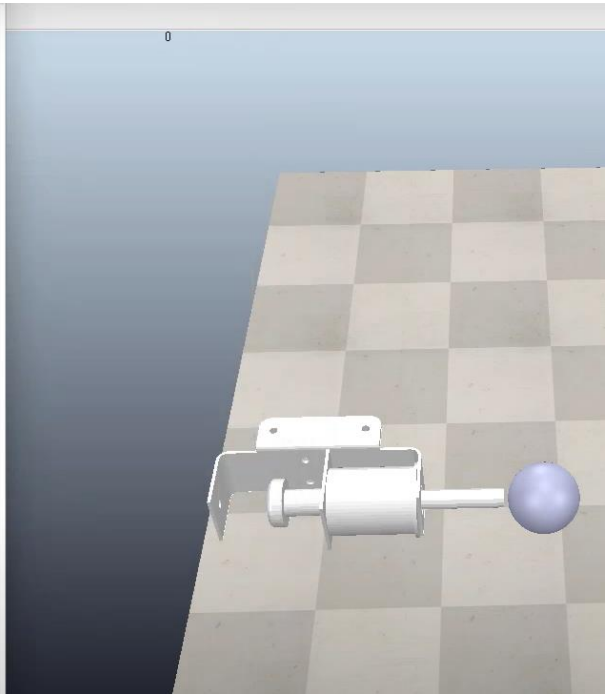
工作分配：

(程式模擬分工)

41223136 陳學儒

推桿模擬+程式做動

```python
# pip install pyzmq cbor keyboard
from coppeliasim_zmqremoteapi_client import RemoteAPIClient
import keyboard

# Connecting to the CoppeliaSim server
client = RemoteAPIClient('localhost', 23000)

print('Program started')
sim = client.getObject('sim')

# Get the handle for the slider (prismatic joint)
slider = sim.getObject('/Prismatic_joint')

# Starting the simulation
sim.startSimulation()
print('Simulation started')

# Main control loop
def main():
    # Keep running until simulation is stopped
    while True:
        if keyboard.is_pressed('w'):  # Move slider to -0.15 position
            print("w is pressed")
            sim.setJointTargetPosition(slider, 0.15)

        if keyboard.is_pressed('s'):  # Reset slider to the original position
            print("s is pressed")
            sim.setJointTargetPosition(slider, 0.0)  # Reset to the initial position

        if keyboard.is_pressed('q'):  # Stop the simulation when 'q' is pressed
            print("q is pressed - stopping simulation")
            sim.stopSimulation()
            break

# Start the main control loop
main()
```

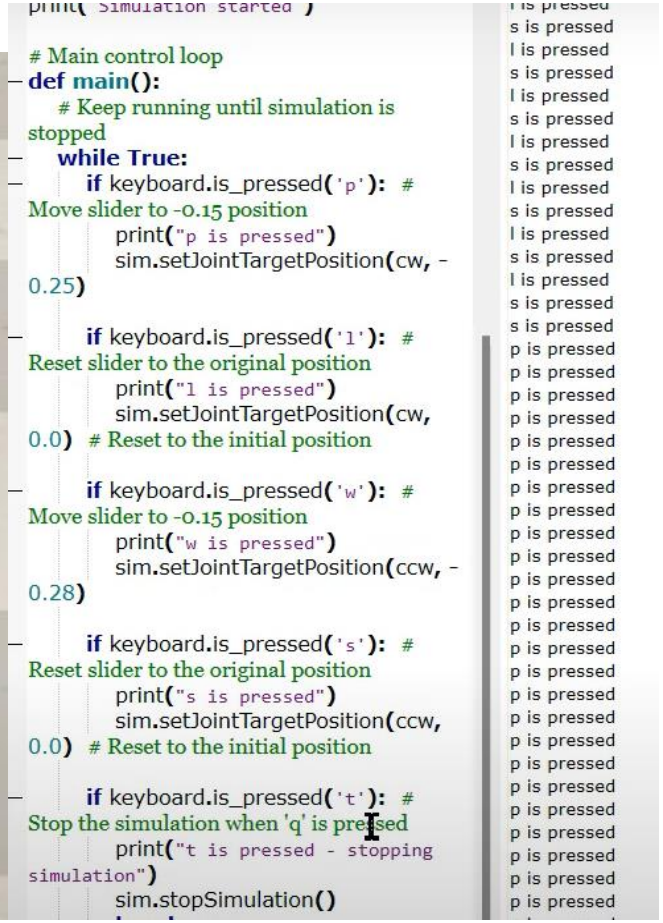


工作分配：

(程式模擬分工)

41223118 呂汶哲

彈珠台設計、左 Flipper 模擬及組合後程式模擬



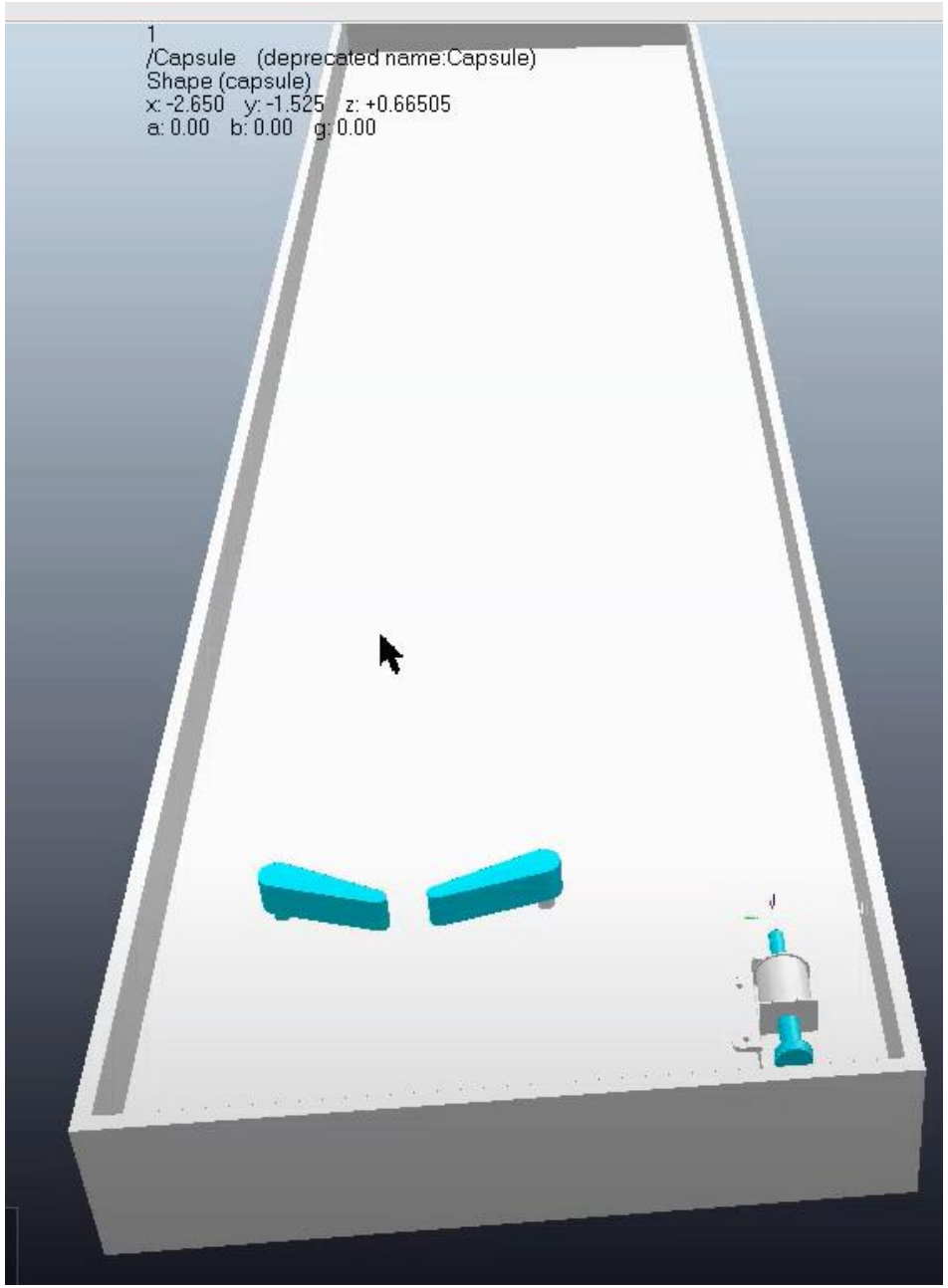
```
print("Simulation started")

# Main control loop
def main():
    # Keep running until simulation is stopped
    while True:
        if keyboard.is_pressed('p'):  # Move slider to -0.15 position
            print("p is pressed")
            sim.setJointTargetPosition(cw, -0.25)

        if keyboard.is_pressed('l'):  # Reset slider to the original position
            print("l is pressed")
            sim.setJointTargetPosition(cw, 0.0)  # Reset to the initial position

        if keyboard.is_pressed('w'):  # Move slider to -0.15 position
            print("w is pressed")
            sim.setJointTargetPosition(ccw, -0.28)

        if keyboard.is_pressed('s'):  # Reset slider to the original position
            print("s is pressed")
            sim.setJointTargetPosition(ccw, 0.0)  # Reset to the initial position

        if keyboard.is_pressed('t'):  # Stop the simulation when 'q' is pressed
            print("t is pressed - stopping simulation")
            sim.stopSimulation()
```

結果：

將Flipper和推桿及彈珠台組合後其結果

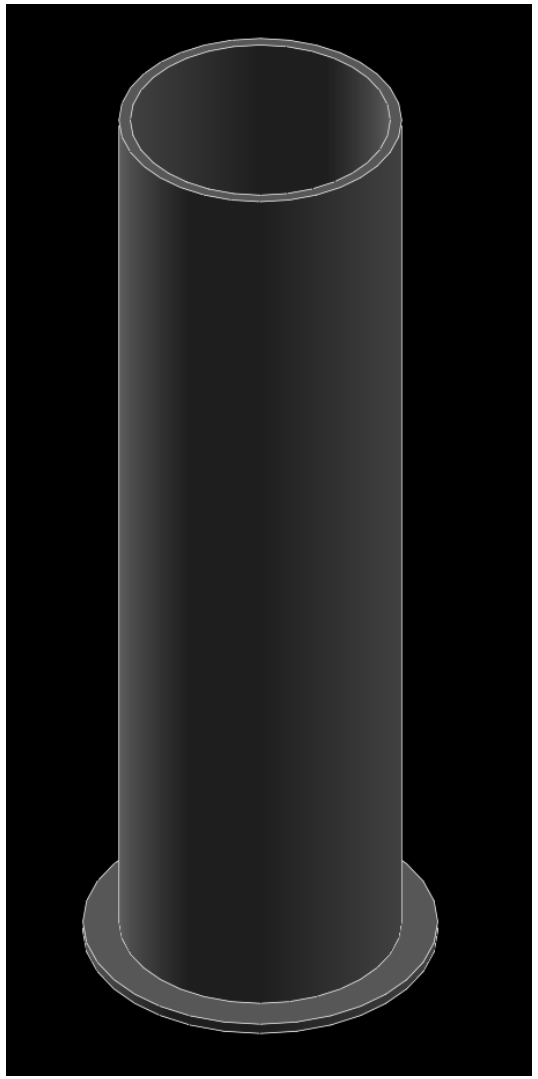
補強：

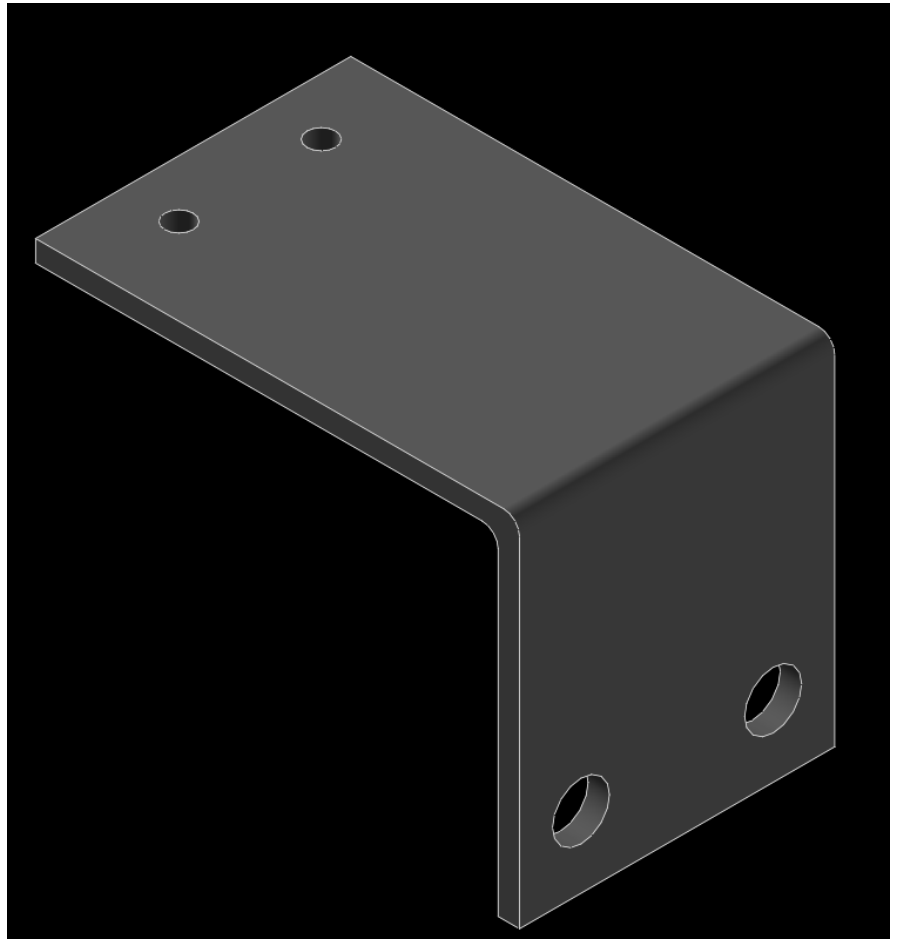
Flipper其底部零件還未全部補齊，推桿擊球還未設定動態模擬



其餘零件繪圖：

41223118 呂汶哲



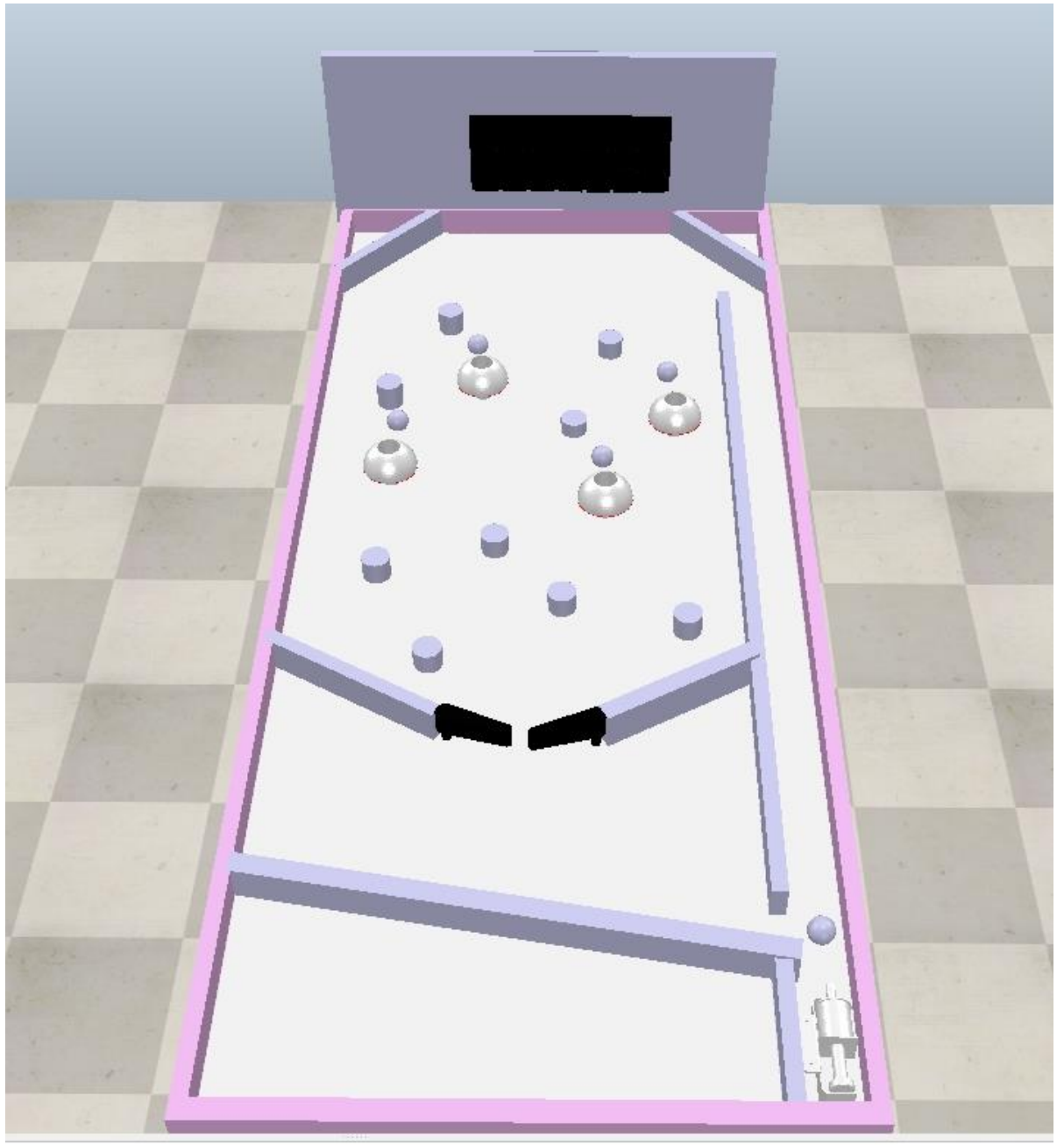


錯誤及修正：

平面無需自己繪製斜角，只需在軟體裡設定就能解決球無規則滾動問題

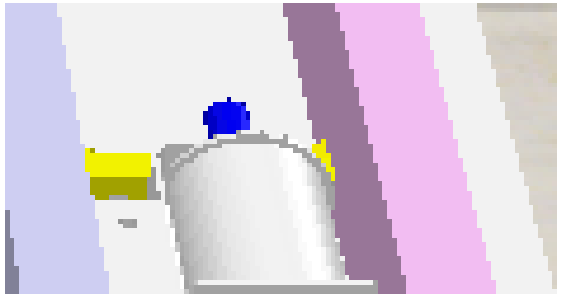
41223136 陳學儒

在解決球滾動問題同時，還將感測器及記分板加上



統整及微調修正：

41223118 呂汶哲



推桿旁留有空隙，球會藉此滾至推桿後方，影響推球，所以增設一擋板

右Flippert作動不靈活且擊球力道與左Flippert不一，檢查時還發現，推桿推力也不足以將球推出球道。

藉由調整位置及增加作動力量來改善其問題