import can

import time

def check\_ecu\_connection(bus, txid, rxid):

"""

Check if the ECU is connected by sending a diagnostic query and awaiting a response.

"""

try:

msg = can.Message(arbitration\_id=txid, data=[0x01, 0x00], is\_extended\_id=True)

bus.send(msg)

print("Sent diagnostic query to ECU.")

timeout = 2 # seconds

start\_time = time.time()

while time.time() - start\_time < timeout:

response = bus.recv(timeout)

if response and response.arbitration\_id == rxid: # Diagnostic response ID

print("ECU connected: Response received.")

return True

print("ECU connection check failed: No response received.")

return False

except Exception as e:

print(f"Error during ECU connection check: {e}")

return False

def send\_message(bus, txid, data):

"""

Send a CAN message to the ECU.

"""

try:

msg = can.Message(arbitration\_id=txid, data=data, is\_extended\_id=True)

bus.send(msg)

print(f"Message sent to ECU: {data}")

except Exception as e:

print(f"Error sending message to ECU: {e}")

def receive\_message(bus, rxid):

"""

Receive a CAN message from the ECU.

"""

try:

timeout = 2 # seconds

response = bus.recv(timeout)

if response and response.arbitration\_id == rxid: # Expected response ID

print(f"Message received from ECU: {response.data}")

return response.data

else:

print("No response received from ECU.")

return None

except Exception as e:

print(f"Error receiving message from ECU: {e}")

return None

if \_\_name\_\_ == "\_\_main\_\_":

# Define your CAN bus configuration

channel = 'can0' # Replace with the correct channel, e.g., 'COM3' on Windows

bitrate = 500000 # Standard bitrate; adjust as needed

txid = 0x18DA03FA # Transmit ID

rxid = 0x18DAFA03 # Receive ID

try:

# Initialize CAN bus

bus = can.interface.Bus(channel=channel, bustype='socketcan', bitrate=bitrate)

print("CAN bus initialized.")

# Check if ECU is connected

if check\_ecu\_connection(bus, txid, rxid):

# Send a message

send\_message(bus, txid, [0x02, 0x10, 0x03])

# Receive a response

response = receive\_message(bus, rxid)

if response:

print(f"ECU Response: {response}")

else:

print("ECU not connected. Exiting.")

except Exception as e:

print(f"Failed to initialize CAN bus: {e}")