# Linear Motion

This notebook will guide you through controlling an **omni-wheel robot** step by step. You'll see an **example**, then try to complete a similar challenge on your own!

In [ ]:
```python
# This part allows VScode to communicate with the robot
# This imports the required libraries and then creates a node for our robot
import sys
import os
import time

# Add parent directory to the Python path
sys.path.insert(0, os.path.abspath('..'))

import rclpy
from controllers.omni_robot_controller import OmniWheelControlNode  # Import

# Initialize ROS2 node
rclpy.init()
node = OmniWheelControlNode()
```

# Challenge: Create a Custom Function for Distance

In [ ]:
```python
# Challenge
# For this challenge you need to write a custom function called move_Distanc
# 1) You will ask the user for an input distance
# 2) You will then have to call the function you created to move that distar

# I have outlined the function below:

def move_Distance_AvereageSpeed(distance):
    # An Average speed is considered 0.5 m/s
    # You may want to refer back to kinematics for how to find the required
    node.move_forward(1.0,need_required_time)

# You need to write the code to have the user input occur below:



# You need to write the code to have the function called below:
```

## Shutting Down the Node

Once you're done, **shutdown the node** properly.

In [ ]:
```
node.destroy_node()
rclpy.shutdown()
```