# Checkpoint #2 Motors Control

[ICN5406] Mobile Robot 2019

Due: November 1, 2019

- **Purpose:**

The purpose of this checkpoint is to make sure you can control the motion of a basic DC motors by using PWM with Raspberry Pi and Arduino.

- **Tasks:**

Please demonstrate your robot performing the following actions by by giving PWM value to motor individually.

1. Move forward. (25%)
2. Move backward. (25%)
3. Turn right. (15%)
4. Turn left. (15%)
5. How straight when moving forward. (20%)

```
isci@mobile:~/catkin_ws$ roslaunch arduino_smallcar mobile_checkpoint2.launch
... logging to /home/isci/.ros/log/0fc9125a-1011-11e8-9501-b827ebaa4d9b/roslaunc
h-mobile-2806.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://192.168.1.119:37524/

SUMMARY
========

PARAMETERS
 * /connect_arduino/baud: 57600
 * /connect_arduino/port: /dev/ttyACM0
 * /rosdistro: kinetic
 * /rosversion: 1.12.12

NODES
  /
    checkpoint2 (arduino_smallcar/checkpoint2)
    connect_arduino (rosserial_python/serial_node.py)

auto-starting new master
process[master]: started with pid [2819]
ROS_MASTER_URI=http://192.168.1.119:11311

setting /run_id to 0fc9125a-1011-11e8-9501-b827ebaa4d9b
process[rosout-1]: started with pid [2832]
started core service [/rosout]
process[connect_arduino-2]: started with pid [2835]
process[checkpoint2-3]: started with pid [2836]
user's right is 120
user's left is 120
user's right is -100
user's left is 50
user's right is 100
user's left is 200
user's right is 0
user's left is 0
user's right is 100
user's left is 100
```
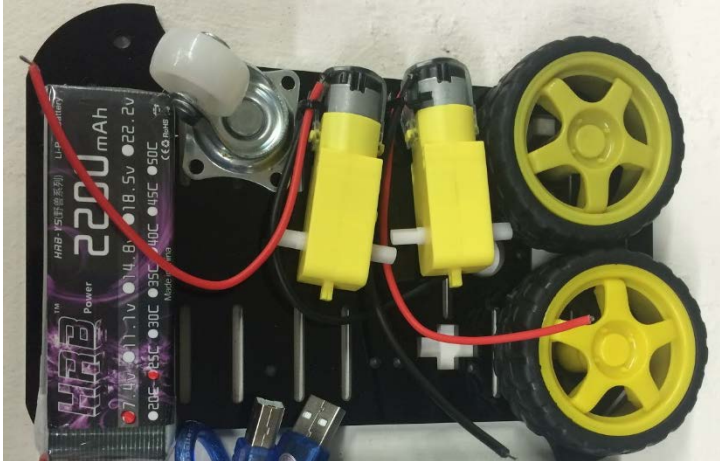
Hint: Use rosserial package to communicate Raspberry Pi and Arduino to help you know the keyboard values to control the corresponding actions.

P.S. Every team should use their own mobile power supply for their own robot.

● Materials list:

| | Material | Number |
|---|---|---|
| 1 | Chassis | 1 |
| 2 | TT DC motors | 2 |
| 3 | 66mm wheels and support wheel | 2 |
| 4 | L298N motor driver board | 1 |
| 5 | Lipo battery | 1 |
| 6 | Lipo battery alarm | 1 |
| 7 | Other supplies | 1 |

| Chassis & DC motors & wheels & Lipo battery | |
|---|---|
|  | |
| L298N motor driver board | Lipo battery alarm |
|  |  |