**Platform 2 System Parameters 11/04/22**

Processor Teensy 3.2

Motor 37D Pololu GBS7-50 GJ12100

Motor Speed 200 rpm

#define K\_P 0.6 // P constant

#define K\_I 0.3 // I constant

#define K\_D 0.2 // D constant

Gear ratio 50 = Motor rev/shaft output rev (PPR)

Motor encoder 64 pulse per motor rev (PPR)

Pulses / Wheel Rev 3200 counts per wheel rev

Wheel diameter 14.4 cm

Wheel circumference 45.24 cm (calculated by

Pulses per cm = 3200 / 45.24 = 70.73 pulses per cm

Pulses per wheel rotation = 3200

IMU MPU9250

Motor driver L298

PWM\_BITS (we need to discuss)

MAX\_RPM 100

Motor 1 (Left motor) cable connects to Motor 1 connector on the Platform (green) board

Motor 2 (Right motor) cable connects to Motor 2 connector on the Platform (green) board

Platform width 28 cm (center of front wheel to center of front wheel

Platform length 22 (front wheel to center of castor)

LR\_WHEELS\_DISTANCE 0.20

FR\_WHEELS\_DISTANCE 0.30

Encoder pins definition

Left encoder (Motor 1)

#define Left\_Encoder\_PinA 14

#define Left\_Encoder\_PinB 15

Right Encoder (Motor 2)

#define Right\_Encoder\_PinA 12

#define Right\_Encoder\_PinB 11

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Motor Pin definition

Left Motor pins (Motor 1)

#define Left\_Motor\_Pin\_A 20

#define Left\_Motor\_Pin\_B 1

#define Left\_Motor\_PWM 22 \*\*\*\*\*\*\*\*\* change from previous version

Right Motor (Motor 2)

#define Right\_Motor\_Pin\_A 6

#define Right\_Motor\_Pin\_B 8

#define Right\_Motor\_PWM 5