

Embedded Systems

ELEC3020

Lab Assignment 7 – Motor Control

Points: 10

TEAMS: This lab will be conducted in teams of 2 students

EQUIPMENT: TTGO controller, motors with encoder, oscilloscope, desktop power supply.

For all experiments:

- Display the current encoder value and motor speed on the LCD, using a suitable time interval to see the impulse response of the motor.

EXPERIMENT 1 Encoder (3 points)

Link your TTGO controller to the Motor controller and encoder.

(a) Encoder connections

- Connect TTGO 3.3V output to encoder “Pin +” and
- Connect TTGO GND to encoder “Pin –”.
- Connect TTGO outputs 2 and 3 to the encoder inputs “Pin A” and “Pin B”.

(b) Software

- Write a program that reads both encoder inputs and counts up or down
- Display the encoder count on the LCD
- How many ticks do you get for one wheel revolution? _____
- Depending on the motor’s spinning direction, the encoder count should increase or decrease.

Show your source code and the encoder setup to the lab demonstrator.



