

# CENG4480 Embedded System Development and Applications

## Computer Science and Engineering Department

### The Chinese University of Hong Kong

#### Laboratory 8: Self-balancing Robot (2) (software)

November, 2021

#### Introduction

In this lab you will complete your self-balancing robot by completing the program given Lab8.ino (you are required to complete the red parts of the program in the flowchart) and tuning the PID constants such that make your robot to standing up.

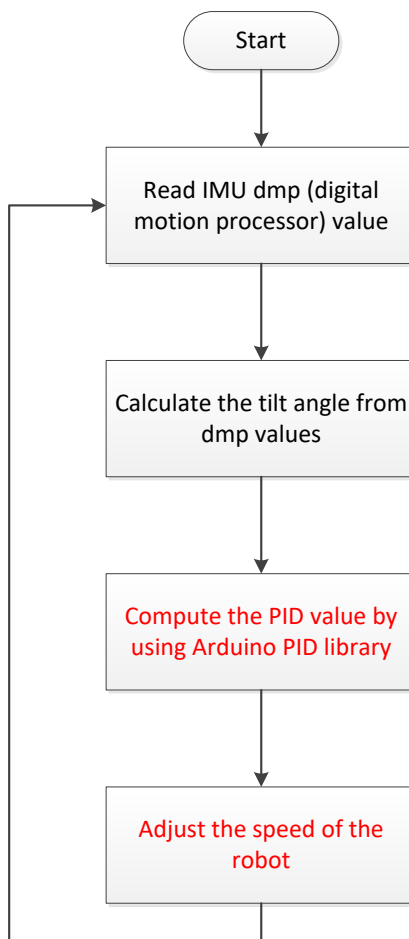
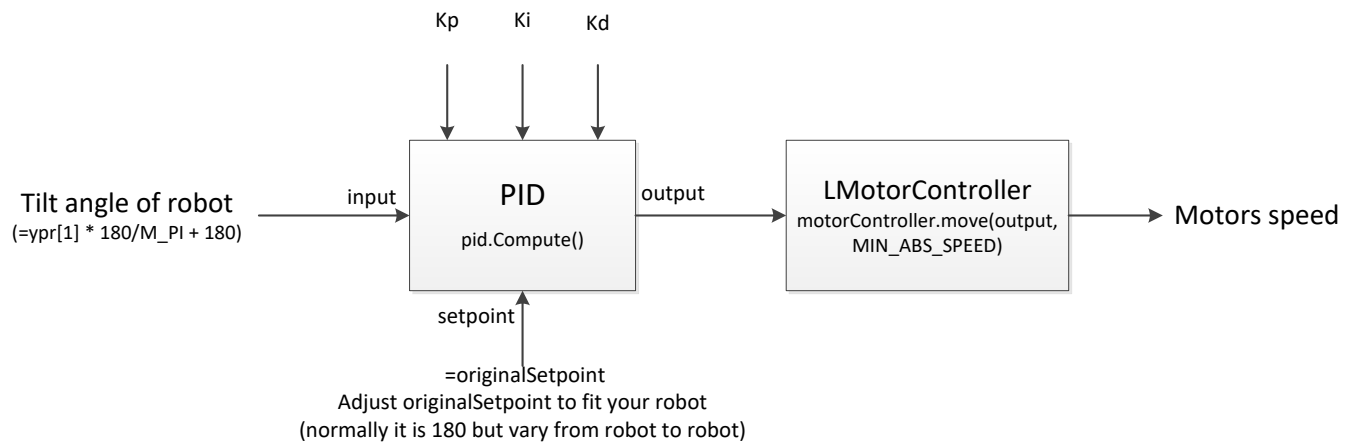


Figure 1. CENG4480 self-balancing robot program flow chart

## The block diagram of PID and LMotorController library



### Objectives

- To learn how to develop software to control the system
- To familiar with the practical work in engineering

### Procedures

1. Complete the given program Lab8.ino.
2. Tuning the Kp, Ki, Kd and originalSetpoint to make your robot standing firmly.
3. Submit the codes and demo video to blackboard before December 9.

**END**