```c
/**
 * @file robot.h
 * @brief General things related to the robot
 * Copyright (C) 2017 Ethan Wells
 *
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 */

#pragma once

#include <math.h>

#include "motors.h"
#include "sensors.h"
#include "pid.h"
#include "lcd.h"
#include "line.h"

#define DRIVE_WHEEL_DIAMETER 4.10
#define DRIVE_ENCODER_RATIO 1.6
#define LCD_PORT uart1
#define drivePos(index) drive[index].sensor->value

#define GO(task, arg)                 \
  taskCreate(&task,                   \
             TASK_DEFAULT_STACK_SIZE, \
             (void *)(arg),           \
             TASK_PRIORITY_DEFAULT)

// Sensors and the like

/**
 * Gyroscopes to measure the robot's rotation:
 *  left          in analog 1
 *  right @ child in analog 2
```

```
 */
extern Sensor gyro;

/**
 * The three line sensors, from left->right, in ports 6, 7, and 8
 */
extern Sensor line[3];

// Motors and servos

/**
 * The two sides of the drive:
 *  left  @ index 0 in power expander @ port 2
 *    child center motor              @ port 4
 *    sensor                          @ digital 4, 5
 *  right @ index 1 in power expander @ port 9
 *    child center motor              @ port 7
 *    sensor                          @ digital 8, 9
 */
extern Motor drive[2];

/**
 * The lift, containing:
 *  left motor           @ port 5
 *    child right motor  @ port 6
 */
extern Motor lift;

/**
 * The intake, consisting of:
 *  left  motor  @ port 3
 *    quad @ digital 7, 6
 *  right motor  @ port 8
 *    quad @ digital 2, 1
 */
extern Motor intake[2];

/**
 * PID settings for the intake
 */
extern PIDSettings intakeSettings[2];

/**
 * PID settings for the drive
 *  left  @ index 0
 *  right @ index 1
```

```cpp
 */
extern PIDSettings driveSettings[2];

/**
 * PID settings for the gyro on the drive
 *  left  @ index 0
 *  right @ index 1
 */
extern PIDSettings gyroSettings[2];

/**
 * Prints information and sets the LCD line 2 to display battery voltage
 */
void info();

// Stuff to set stuff
void driveSet(int l,
              int r);

/**
 * Reset the sensors on the robot
 */
void reset();

/**
 * Update motors and refresh sensors
 */
void update();

/**
 * Reset the left and right drive encoders
 */
void resetDrive();

/**
 * @brief set the intake to a given power
 *
 * @param p the power to set it to, or 0 to hold in place
 */
void intakeSet(int p);
```