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// motors.hpp: Header file of hardware abstraction for motors and slewing
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#ifdef MOTORS_HPP
#define MOTORS_HPP

#include "API.h"
#include "util.h"

/** Class for motor objects */
struct motor_t {
    /** Port the motor is plugging in to */
    unsigned char port;
    /** The inversed status of the motor, should be 1 or -1 */
    char inverted;
    /** The requested power value of the motor */
    int power;
    /** A multiplier for setting the motor values */
    float scale;
    /** The rate at which motor power should increase for every
     * motors::slew::slewWait milliseconds */
    float slewRate;
    /** The last update time of the motor. Is managed by the slew task, so it
     * shouldn't need to be changed */
    unsigned long tlast;
    /** Set the motor to the specified power */
    void set(int power);
}; // struct motor_t

/** Namespace relating to the motors and setting them, initializing them,
 * slewing, etc */
namespace motors {
    /** Sets the motor to the power */

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void set(motor_t motor, int power);

/** Gets the current power value requested of the motor, analogous of
 * motor.power */
int get(motor_t motor);

/** Returns an initialized motor_t object with the specified parameters, and
 * adds a duplicate of the motor to the motor list for slewing */
motor_t init(unsigned char port, int inverted, float slewRate, float scale);

/** Namespace relating to slewing the motors to save the gears and the PTCs */
namespace slew {
    /** The wait time between each iteration of setting all of the motors */
    static const unsigned char slewWait = 10;
    /** The list of motors, as added to in motors::init() */
    extern motor_t list[11];
    /** The TaskHandle for handling the slewing task */
    extern TaskHandle handle;

    /** Initialization function for slewing. Call in initialize() */
    void init(void);
} // namespace slew
} // namespace motors

#endif /* end of include guard: MOTORS_HPP */

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