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// pid.hpp: Header file for the pid controller and all of it's assets
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#pragma once
#include "lift.hpp"

/** Consists of pid, and all subcomponents, etc */
namespace pid {
    /** Maximum value for the drive */
    static const int DRIVE_MAX = 127;
    /** Minimum value for the drive */
    static const int DRIVE_MIN = -127;
    /** Limit for the integral value */
    static const int INTEGRAL_LIMIT = 50;
    /** p value */
    extern float Kp;
    /** i value */
    extern float Ki;
    /** d value */
    extern float Kd;
    /** Default precision for waiting on pid to reach value */
    extern unsigned int default_precision;
    /** Whether or not each side of the drive's pid is enabled, in the order of
     * left
     * to right */
    extern bool enabled[2];

    /** Enables all pid */
    void enable(void);

    /** Disables all pid */
    void disable(void);
}

```

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/** Task to manage pid */
void controller(void* none);

/** Initialize pid. Call in initialize() */
void init(void);

/** Stops the pid task */
void stop(void);

/** (Re)starts the pid task */
void go(void);

/** Requests values for the left and right side of the drive */
void request(long l, long r);

/** Wait until pid reaches specified precision, for no longer than the
 * specified
 * blockTime. If 0 is passed to blockTime, it will wait indefinitely until the
 * requested values are met */
void wait(unsigned long precision, unsigned long blockTime);
/** TaskHandle for the pid task */
extern TaskHandle pidHandle;
} // namespace pid

```