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/**
 * @file auto.h
 * @brief Structures and information pertaining to autonomous that is needed in
 * places other than auto.c
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 *
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 * with this program. If not, see <https://www.gnu.org/licenses/>
 */

#ifndef CARL_AUTO_H_
#define CARL_AUTO_H_

#include "../include/robot.h"

#define MAX_AUTON 8

enum MOGO_POS {
    MOGO_UP = 75,
    MOGO_PART = 550,
    MOGO_MID = 1350,
    MOGO_DOWN = 2050,
};

enum LIFT_POS {
    LIFT_CONE = 203,
    LIFT_DOWN = 290,
    LIFT_LOAD = 625,
    LIFT_QUARTER = 1000,
    LIFT_HALF = 1850,
    LIFT_3_QUARTER = 2350,
    LIFT_UP = 3400,
};

enum MANIP_POS {
    MANIP_NORMAL = 340,

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        MANIP_PLACE = 600,
        MANIP_HOVER = 2150,
        MANIP_INTAKE = 3200,
};

/*
enum MANIP_POS {
    MANIP_NORMAL = 1000,
    MANIP_PLACE = 650,
    MANIP_HOVER = 450,
    MANIP_INTAKE = 350,
};
*/

typedef struct Auton {
    const char *name;
    const char *sensorName;
    Sensor **sensor;
    void (*execute)();
} Auton;

typedef enum Direction {
    dUp,
    dDown,
    dLeft,
    dRight,
    dIn,
    dOut,
} Direction;

typedef struct Triple {
    int a;
    int b;
    int c;
} Triple;

/**
 * A list of the autonomouses/LCD menus
 */
extern Auton autons[MAX_AUTON + 1];
/**
 * The autonomous, as selected by the LCD menu, to run
 */
extern int selectedAuton;

/*

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    * @breif Bring the lift to the specified position
    *
    * @param pos the position to bring the lift to
    * @param until the maximum amount of time this can take in ms
    */
void liftToPosition(float      pos,
                    unsigned long until);

void manipToPosition(float pos, unsigned long until);

/**
 * @brief Bring the drive to a specific position
 *
 * @param l the left position
 * @param r the right position
 * @param until the maximum amount of time this can take
 */
void driveToPosition(int      l,
                     int      r,
                     unsigned long until);

/**
 * @brief Bring the drive to a specific position while attempting to maintain an angle
 *
 * @param l the left position
 * @param r the right position
 * @param a the angle to maintain
 * @param until the maximum amount of time this can take
 */
void driveToPositionAngle(int      l,
                          int      r,
                          int      a,
                          unsigned long until);

/**
 * @brief Bring the mobile goal intake to a position
 *
 * @param p the position to go to
 */
void mogoP(int p);

/**
 * Use PID to turn to a specific angle
 *
 * @param angle the angle to turn to
 * @param until the max amount of time this can take

```

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    */
void turnTo(int          angle,
            unsigned long until);

/**
 * @brief Go forward and get the mobile goal! (the beginning of nearly any
 * autonomous here)
 */
void getMogo();

/**
 * @brief Place the cone on dat goal!
 */
void placeCone();

/**
 * Drop mobile goal into the 20 point zone
 *
 * @return a TaskHandle of the task bringing the intake back into the robot
 */
TaskHandle dropMogo20(TaskHandle mogoHandle);

/**
 * @brief Back up at a certain time for about half a second
 */
Task backUp(void *time);

/**
 * @brief bring the mobile goal intake to a position in a task
 */
Task mogoPT(void *p);

/**
 * @brief task for placing a cone
 */
Task placeConeT(void *none);

/**
 * @brief Task for liftToPosition
 */
Task liftPID(void *none);

/**
 * @brief don't use, it doesn't work
 */
void moveTo(int leftV,

```

```
int rightV,  
int liftV,  
int mogoV,  
int intakeV,  
int gyroV);  
  
#endif // AUTO_ROBOT_H
```