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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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 */

#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    = 2200,
};

enum ARM_POS {
    ARM_DOWN      = 10,
    ARM_QUARTER   = 275,
    ARM_HALF      = 360,
    ARM_3_QUARTER = 540,
    ARM_3_5_QUARTER = 650,
    ARM_LOAD      = 720,
    ARM_CONE      = 850,
};

enum CLAW_POS {
    CLAW_OPEN     = 1875,

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        CLAW_CLOSED = 1090,
};

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;

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

/**
 * @brief Bring the drive to a specific position
 */

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

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

/**
 * @brief Place the cone on dat goal!
 */

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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 armToPosition
 */
Task armPID(void *none);

/**
 * @brief don't use, it doesn't work
 */
void moveTo(int leftV,
            int rightV,
            int armV,
            int mogoV,
            int clawV,
            int gyroV);

#endif // AUTO_ROBOT_H_

```