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/**
 * @file opcontrol.c
 * @brief Controls what happens in operator control
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 *
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 */

#include <string.h>
#include "../include/robot.h"

#define MOGO_HOLD 300

extern bool isAuto;

int digital(unsigned char joyNum,
            unsigned char channel,
            unsigned char b1,
            unsigned char b2) {
    return joystickGetDigital(joyNum, channel, b2) * -1 +
        joystickGetDigital(joyNum, channel, b1) * 1;
} /* digital */

void moveDrive();
void moveMogo();
void moveIntake();
void moveLift();
void manipPID();
void moveManip();

void autonLeft22();
void autonLeft22T();

void operatorControl() {
    #ifdef DEBUG_MODE

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        printf("Starting Driver Control...\n");
    #endif
    reset();
    update();
    isAuto = false;

    manipSettings.target = manip.sensor->value;
    liftSettings.target   = lift.sensor->value;

    /*
     *   if (liftLimit[0].value) {
     *       liftSettings.target = ARM_QUARTER;
     *       PID(&liftSettings);
     *   }
     */

    bool isSkills = strstr(autons[selectedAuton].name, "skills");

    while (true) {
        if (joystickGetDigital(1, 7, JOY_LEFT) &&
            joystickGetDigital(2, 7, JOY_LEFT)) {
            exit(0);
        }

        if (isSkills) {
            // skillsMogo();
            if (joystickGetDigital(2, 7, JOY_DOWN)) {
                reset();
                sensorReset(drive[0].sensor);
                sensorReset(drive[1].sensor);
                sensorReset(lift.sensor);
                sensorReset(mogo.sensor);
                sensorReset(&gyro);
                autonLeft22();
            }
        }

        moveDrive();
        moveMogo();
        moveIntake();
        manipPID();
        moveLift();
        update();

        delay(20);
    }

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} /* operatorControl */

void moveDrive() {
    drive[0].power = deadBand(joystickGetAnalog(1, 3), 10) +
        127 * digital(1, 7, JOY_UP, JOY_DOWN) +
        127 * digital(1, 7, JOY_RIGHT, JOY_LEFT);
    drive[1].power = deadBand(joystickGetAnalog(1, 2), 10) +
        127 * digital(1, 8, JOY_UP, JOY_DOWN) +
        127 * digital(1, 8, JOY_LEFT, JOY_RIGHT);
} /* moveDrive */

void moveMogo() {
    int power = 127 * digital(1, 5, JOY_UP, JOY_DOWN);

    if ((mogo.power == 127) || (mogo.power == 9) && !power)
        power = 9; mogo.power = power;
} /* moveMogo */

void moveLift() {
    static unsigned long lastPress;

    if (digital(2, 6, JOY_DOWN, JOY_UP) + digital(1, 6, JOY_UP, JOY_DOWN) ||

        lift.power = 127 * (digital(1, 6, JOY_UP, JOY_DOWN) +

        if (lift.power > 0 && manip.sensor->value <
            (MANIP_INTAKE + MANIP_HOVER) / 2 - 2)
            lift.power = 0;
            manipSettings.target = MANIP_HOVER;
        } else if (lift.power) {
            lastPress = millis();
        }

        if (liftLimit[0].value) {
            sensorReset(lift.sensor);
            lift.power = clipNum(lift.power, 0, -127);
        } else if (liftLimit[1].value) {
            lift.sensor->zero = lift.sensor->value - 1000;
            lift.power = clipNum(lift.power, 127, 0);
        }
        liftSettings.target = lift.sensor->value;
    } else if (liftLimit[0].value) {
        sensorReset(lift.sensor);
        liftSettings.target = 0;
        lift.power = 0;
    }
}

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    } else if (liftLimit[1].value) {
        lift.sensor->zero = lift.sensor->value - 1000;
        liftSettings.target = 1000;
        lift.power = 0;
    } else {
        PID(&liftSettings);
    }
} /* moveLift */

void moveManip() {
    manip.power = 127 * digital(2, 8, JOY_UP, JOY_DOWN);
}

void moveIntake() {
    intake.power = 127 * digital(2, 5, JOY_UP, JOY_DOWN);
} /* moveIntake */

void manipPID() {
    static unsigned long lastPress;
    static int power;

    if (joystickGetDigital(2, 7, JOY_UP))
        manipSettings.target = MANIP_PLACE;
    else if (joystickGetDigital(2, 7, JOY_RIGHT))
        manipSettings.target = MANIP_HOVER;
    else if (joystickGetDigital(2, 7, JOY_DOWN))
        manipSettings.target = MANIP_INTAKE;

    power = 127 * digital(2, 8, JOY_UP, JOY_DOWN);

    if (power) {
        if (manip.sensor->value < MANIP_PLACE - 50 && power > 0) {
            manipSettings.target = MANIP_PLACE;
            PID(&manipSettings);
        } else {
            manip.power = power;
            manipSettings.target = manip.sensor->averageVal;
            lastPress = millis();
        }
    } else if (millis() - lastPress < 190) {
        manip.power = 0;
    } else {
        PID(&manipSettings);
    }
} /* manipPID */

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void autonLeft22T(void *none) {  
    autonLeft22();  
    taskDelete(NULL);  
} /* autonLeft22T */
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