

```

// drive.cpp: Source file for utilities relating to the drive
// Copyright (C) 2017 Ethan Wells
//
// This program is free software: you can redistribute it and/or modify
// it under the terms of the GNU Lesser General Public License as published by
// the Free Software Foundation, either version 3 of the License, or
// (at your option) any later version.
//
// This program is distributed in the hope that it will be useful,
// but WITHOUT ANY WARRANTY; without even the implied warranty of
// MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
// GNU Lesser General Public License for more details.
//
// You should have received a copy of the GNU Lesser General Public License
// along with this program. If not, see <http://www.gnu.org/licenses/>.

#include "../include/main.h"

namespace drive {
    side_t left;
    side_t right;
    double inch =
        28.64788975654116043839907740705258516620273623328216077458012735;

    void side_t::set(int power) {
        side_t::topM.set(power);
        side_t::midM.set(power);
        side_t::lowM.set(power);
    }

    void init(void) {
        left.topM = motors::init(2, 1, .5, .8);
        left.midM = motors::init(3, -1, .5, .8);
        left.lowM = motors::init(4, 1, .5, .8);
        right.topM = motors::init(7, -1, .5, .8);
        right.midM = motors::init(8, 1, .5, .8);
        right.lowM = motors::init(9, -1, .5, .8);
        left.sensor = &sensors::left;
        right.sensor = &sensors::right;
    }

    void set(int lpower, int rpower) {
        left.set(lpower);
        right.set(rpower);
    }
}

```

```

void tank(void) {
    int deadband = 20;
    int lj      = joystickGetAnalog(1, 3);
    int rj      = joystickGetAnalog(1, 2);
    if (abs(lj) < deadband && abs(rj) < deadband) {
        pid::enable();
        return;
    }
    lj          = (abs(lj) < deadband) ? 0 : lj;
    rj          = (abs(rj) < deadband) ? 0 : rj;
    pid::enabled[0] = (lj == 0);
    pid::enabled[1] = (rj == 0);
    if (lj != 0)
        left.set(lj);
    if (rj != 0)
        right.set(rj);
    pid::request((lj == 0) ? left.sensor->request : left.sensor->value(),
                 (rj == 0) ? right.sensor->request : right.sensor->value());
}

namespace accel {
    int deadband = 20;
    int x        = 0;
    int y        = 0;
    int prevX    = 0;
    int prevY    = 0;
    void drive(void) {
        prevX      = x;
        prevY      = y;
        x          = 0 - joystickGetAnalog(1, ACCEL_X);
        y          = 0 - joystickGetAnalog(1, ACCEL_Y);
        int threshold = 20;
        double multiplier = 1.1;

        if (abs(x) < threshold)
            x = 0;
        if (abs(y) < threshold)
            y = 0;

        x *= multiplier;
        y *= (multiplier * 1.25);

        int lj      = x - y;
        int rj      = x + y;
        lj          = (abs(lj) < deadband) ? 0 : lj;
        rj          = (abs(rj) < deadband) ? 0 : rj;
    }
}

```

```

    pid::enabled[0] = (lj == 0);
    pid::enabled[1] = (rj == 0);
    if (lj != 0)
        left.set(lj);
    if (rj != 0)
        right.set(rj);
    pid::request((lj == 0) ? left.sensor->request : left.sensor->value(),
                 (rj == 0) ? right.sensor->request : right.sensor->value());
}
} // namespace accel

void inches(long inches) {
    pid::enable();
    left.sensor->request += inches * inch;
    right.sensor->request += inches * inch;
    pid::wait(pid::default_precision, inches * inches * 8);
    pid::disable();
}
} // namespace drive

```