#include <kipr/wombat.h>

void grabRing(int armUp, int armDown, int clawOpen, int clawClose);

void driveToPole(int distanceToPole);

void dropRing(int armUp, int armDown, int clawOpen, int clawClose);

void driveBack();

void driveFromStack();

int main()

{

wait\_for\_light(0); //automatic start w/light for 119 secs

shut\_down\_in(119);

enable\_servos();

//Red and orange

grabRing(1232, 1796, 387, 1097);

driveToPole(114\*82);

dropRing(1232, 1558, 387, 1038);

//Yellow and green

driveBack();

grabRing(1100, 1918, 387, 1016);

driveFromStack();

dropRing(1232, 1558, 387, 1038);

//Blue

driveBack();

grabRing(1232, 1991, 387, 916);

driveFromStack();

dropRing(1232, 1558, 387, 1038);

ao();

return 0;

}

void grabRing(int armUp, int armDown, int clawOpen, int clawClose)

{

set\_servo\_position(3, clawOpen);

msleep(1000);

int y; //slowly going down

for(y = armUp; y <= armDown; y++)

{

set\_servo\_position(0, y);

msleep(15);

}

//slowly close

int b;

for(b = clawOpen; b <= clawClose; b++)

{

set\_servo\_position(3, b);

msleep(5);

}

ao();

int x; //slowly lifting up stack

for(x = armDown; x >= armUp; x--)

{

set\_servo\_position(0, x);

msleep(7);

}

msleep(300);

}

void driveToPole(int distanceToPole)

{

cmpc(0);

while (gmpc(0) < 3.14 \* 82.0 \* (90.0/360.0) \* 16.76) //turn 90 right

{

mav(0, 1500);

mav(3, -1475);

}

ao();

cmpc(0);

while(gmpc(0)< 82 \* 14) //move forward

{

mav(0, 1500);

mav(3, 1475);

}

cmpc(3);

while (gmpc(3) < 3.14 \* 82.0 \* (90.0/360.0) \* 16.76) //turn 90 left, face forward

{

mav(0, -1500);

mav(3, 1475);

}

ao();

//drive up to pole

cmpc(0);

while(gmpc(0)< distanceToPole)

{

mav(0, 1500);

mav(3, 1490);

}

ao();

cmpc(0);

while (gmpc(0) < 3.14 \* 82.0 \* (47.0/360.0) \* 16.76) //turn right to the pole

{

mav(0, 1500);

mav(3, -1475);

}

ao();

}

void dropRing(int armUp, int armDown, int clawOpen, int clawClose)

{

//arm down

int y; //slowly going down

for(y = armUp; y <= armDown; y++)

{

set\_servo\_position(0, y);

msleep(15);

}

ao(0);

cmpc(3);

while (gmpc(3) < 3.14 \* 82.0 \* (3.0/360.0) \* 16.76) //turn left slightly to drop

{

mav(0, -1500);

mav(3, 1475);

}

ao();

int b;

for(b = clawClose; b >= clawOpen; b--)

{

set\_servo\_position(3, b);

msleep(5);

}

ao();

}

void driveBack()

{

cmpc(0);

while(gmpc(0) > -25\*82)

{

mav(0, -1500);

mav(3, -1475);

}

ao();

cmpc(0);

while (gmpc(0) < 3.14 \* 82.0 \* (74.0/360.0) \* 16.76) //turn 90 right, face pole

{

mav(0, 1500);

mav(3, -1475);

}

ao();

cmpc(0);

while(gmpc(0) < 32\*82)

{

mav(0, 1500);

mav(3, 1475);

}

ao();

}

void driveFromStack()

{

cmpc(0);

while(gmpc(0) > -32\*82)

{

mav(0, -1500);

mav(3, -1475);

}

ao();

cmpc(3);

while (gmpc(3) < 3.14 \* 82.0 \* (74.0/360.0) \* 16.76) //turn 90 left, face pole

{

mav(0, -1500);

mav(3, 1475);

}

ao();

cmpc(0);

while(gmpc(0) < 18\*82)

{

mav(0, 1500);

mav(3, 1475);

}

ao();

}