struct Bike1 {

uint32\_t x; // x coordinate

uint32\_t y; // y coordinate

const unsigned short \*image; // ptr->image

char life; // 0=dead, 1=alive};

typedef struct Bike1 P1;

P1 Player1[4];

void Player1\_Init(void){ int i;

for(i=0;i<4;i++){

Player1[i].x = 0;

Player1[i].y = 70;

Player1[i].image = &cycle1[80];

Player1[i].life = 1;}

P1direction = east;

boost1count = 3;

ST7735\_DrawBitmap(Player1[0].x, Player1[1].y, cycle1, 40, 15); }

int MoveP1(int h, int v){

if(boost1>0){

h = h\*2;

v = v\*2;

boost1--;}

if((Player1[0].x)> 159 ){ //check x position

Player1[3].life = 0;

return 1;//error, do nothing}

if((Player1[1].y)> 254 ){ //check y position

Player1[3].life = 0;

return 1; //error, do nothing}

while(h !=0 || v !=0){

if(h<0){

Player1[0].x -= 1;

h++;}

if(0<h){

Player1[0].x += 1;

h--;}

if(v<0){

Player1[1].y -= 1;

v++;}

if(0<v){

Player1[1].y += 1;

v--;}

P1pos[P1Index].x = Player1[0].x;

P1pos[P1Index].y = Player1[1].y;

checkIndex = P1Index;

while(checkIndex !=0){

if((P1pos[P1Index].x == P2pos[checkIndex].x)&&(P1pos[P1Index].y == P2pos[checkIndex].y)){

Player1[3].life = 0;}

checkIndex--;}

checkIndex = P1Index-1;

if(checkIndex>0){

while(checkIndex !=0){

if((P1pos[P1Index].x == P1pos[checkIndex].x)&&(P1pos[P1Index].y == P1pos[checkIndex].y)){

Player1[3].life = 0;}

checkIndex--;}}

P1Index++;

if(Player1[1].y <128){

ST7735\_DrawBitmap(Player1[0].x, Player1[1].y, pixel1, 1, 1);}}

UART\_OutChar(0x02);//STX

UART\_OutChar(0x0E);//current screen

UART\_OutChar(Player1[0].x);//p1 data

UART\_OutChar(Player1[1].y);

UART\_OutChar(Player2[0].x);//p2 data

UART\_OutChar(Player2[1].y);

UART\_OutChar(0x00);//extra

UART\_OutChar(0x03);//ETX

return 0; }

////////////////////////////////////////////

int P1direction = east;

int P2direction = west;

int arrH[4] = {0, 1, 0, -1};

int arrV[4] = {1, 0, -1, 0};

void Set\_Flag(){

Arena\_Flag = 1;

}

int Arena\_Map(int R1, int L1, int R2, int L2){

if(R1 == 1 && L1 ==0){

if(P1direction == 3){

P1direction = 0;}

else{ P1direction++;}}

if(R1 == 0 && L1 ==1){

if(P1direction == 0){

P1direction = 3;}

else{ P1direction--;}

h1 = arrH[P1direction];

v1 = arrV[P1direction];

h2 = arrH[P2direction];

v2 = arrV[P2direction];

while((Player1[3].life) == 1 && (Player2[3].life )== 1){

while(Arena\_Flag == 0){}

Arena\_Map(rightb1, leftb1, rightb2, leftb2);

MoveP1(h1, v1);

MoveP2(h2, v2);

Arena\_Flag = 0;