0299 Lebanese School of Qatar

Period 2 Code Review

Introduction

The review is over our code written for our Create robot, and precisely over the color detection to identify the burning tower and successfully place the game pieces in their respective places.

The main coder was Christopher Akoury, and the review is being done by

Rami and Leen. Our review was conducted on 01/17/2019.

Best Practices Checklist

☐ Code uses functions for organization

☒ Code contains comments documenting each function's purpose

☒ Code contains comments documenting each function's arguments

☐ Code contains comments documenting each function's return values

☒ All variable names are descriptive and convey use in code

☒ No unnamed constants other than 0,1, or 2

☒ Code is formatted to show flow control

☒ Removed commented out code that is no longer in use

After each try, the return values, port numbers, and remarkable servo positions were marked in a notebook for quick reference.

General Code Analysis

Reliability

Our main concern was distance. The further away from the target the camera got, the less reliable it became. The first thought that came to mind was to move the robot closer to said target, but that wasn't possible. Instead of scanning both buildings for fire, and knowing that only would burn, we coded it so that the fire became the trigger for the claw to rise and place the water tank on top of the tower. In case the bot happens to start by scanning the safe building, it will head towards the endangered one and do the mentioned actions. Once the fire is detected, it's just a matter of trial and error to make the extinguishing process impeccable and faultless.

The slight difference between the official game table and our makeshift one should be no match to our camera's great range of vision.

Maintainability

The essence of our code is one important factor: experience. Our team harbors members who were in on the process of creating the codes for previous successful projects, and their contributions took great part in teaching us the tips and tricks to maintain a consistent rate of improvement.

Our teacher oversaw our work, helping us here and there so that we don't get lost because of the tiny changes that could go unnoticed.

We pushed ourselves nearly to our limits in attempts to further improve our code, and our efforts did not go to waste.

Effectiveness

We believe our coders were cherry-picked for their task; you can't fly a plane without a pilot… With their unfathomable level of knowledge and their limitless dedication, our robot was able to maneuver around the table with ease.

They are good in creating their own set of void functions and working with previously

written lines of code, nevertheless they added their own touches to it, making it even better.

Codes Used:

```
/* set the servo position without calling the set_servo_position, just call ssp and pass the port and value as parameters

the main reason to use this ssp function instead of the original long function, is to reduce the amount of written code and time.

same for create_drive_direct*/


void cdd(int lw, int rw)

{ Create_drive_direct(lw, rw); }


void ssp(int prt, int vll)

{ Set_servo_position(prt, vll); }
```

```
/*Detect yellow color*/
void getYel()
{ int vTemp;
    camera_open_black();
    int x = 0;
    for(x = 0; x<101; x=x+5) //update the camera
    { camera_update(); }
    msleep(500);
    if (get_object_count(0) > 0)
    {
    vTemp= 0;
    printf("Detection of yellow of bldg 1\n"); // print this when yellow is detected
     camera_close();
     liftTank(); //lift the water tank to put it on top of the burning bldg.
    }
    else if (get_object_count(0) < 1)
    {
     vTemp= 1;
     printf("Yellow on bldg 2\n");
     cdd(500, 0); //turn left motor forward
     msleep(1000);
     cdd(0, 0);
     msleep(1000);}
    camera_close();
     liftTank(); //lift the water tank to put it on top of the burning bldg.
   }
```