

DARwIn-OP Introduction [DASL-104] Summer/2017

Homework #3

Questions:

1 – Based on "VisionMode.cpp" code; what are the modifications necessary to call script 10 for color RED and script 20 for yellow?

Fill the red blanks:

```
#include <stdio.h>
#include "VisionMode.h"
#include "Action.h"
#include "ColorFinder.h"
#include "LinuxActionScript.h"

namespace Robot
{
void VisionMode::Play(int color)
{
    static int old_color = 0, color_count = 0;

    if(old_color != color || color == 0)
    {
        old_color = color;
        color_count = 0;
    }
    else
        color_count++;

    if(color_count < 15) return;

    switch(color)
    {
    case (RED):
        Action::_____()->Start(____);
        _____::PlayMP3("../Data/mp3/Thank you.mp3");
        break;
    case (YELLOW):
        Action::_____()->Start(____);
        _____::PlayMP3("../Data/mp3/Introduction.mp3");
        break;
    }

    color_count = 0;
}
}
```

2 – Which values must be changed in order to have a faster gait?
Explain why the changes would make DARwIn-OP move faster. (Fig.1)

```
Walking Mode(on/off)      OFF
X offset(mm)              -10
Y offset(mm)              5
Z offset(mm)              20
Roll(x) offset(degree)    0.0
Pitch(y) offset(degree)   0.0
Yaw(z) offset(degree)     0.0
Hip pitch offset(degree)  13.0
Auto balance(on/off)      ON
Period time(msec)        600
DSP ratio                 0.10
Step forward/back ratio   0.28
Step forward/back(mm)    0
Step right/left(mm)      0
Step direction(degree)    0.0
Turning aim(on/off)      OFF
Foot height(mm)          40
Swing right/left(mm)     20.0
Swing top/down(mm)      5
Pelvis offset(degree)    3.0
Arm swing gain            1.5
Balance knee gain         0.30
Balance ankle pitch gain  0.90
Balance hip roll gain     0.50
Balance ankle roll gain   1.00
P gain                   32
I gain                   0
D gain                   0
]
```

3 – Summarize how to operate the “Action Editor” function. PS This will be very valuable during the Final exam. Use the following link as a reference: http://support.robotis.com/en/product/darwin-op/development/tools/action_editor.htm