Escola Superior de Tecnologia e Gestão Instituto Politécnico da Guarda	**Laboratorial Work**

Nº 7			
Group: 3.1 ←Identify your group			
Number	1012164	Name	Carina Tomé
Number	1012396	Name	Rui Manta (missing)
Number	1012180	Name	Pedro Fiuza
Number	1012208	Name	Dário Ribeiro

Fill in the header record with the names and numbers of the group members and add "(missing)" next to the name, in case any member of the group missed the class. After finishing the laboratorial work, create a PDF doc called "Grupo X.X – LW X.PDF" submit it via the form at http://bit.ly/2TL0lKS.

If the answers to the questions is Java code, you must use color black and font Courier New, size 10, to write the code. Also, indent all the code. A penalty of 50% will be applied if you forget to do this.

The answer to this question is only valid if you demonstrate it to the professor, during this class.

1. Complete question 3 of the previous LW if you have not already done so.

Don't answer by presenting all your program. Use the following sections to present your new code.

Delete what doesn't apply.

Declaration of new constants, if any

Declaration of new objects and variables, if any

Creation and initialization of objects and variables, if any

New functions, if any

Call of the new functions, if any

New code, if any

2. Complete the implementation of the CENTER state started in the theoretical-practical class. It is necessary to add a condition in the NAVIGATE_RIGHT state that causes the robot to transfer control to the CENTER state, if the flame is detected. Check the correct functioning of the flame sensor and choose the appropriate limits for the proper functioning of the CENTER state.

Don't answer by presenting all your program. Use the following sections to present your new code. Delete what doesn't apply.

Declaration of new constants, if any

Declaration of new objects and variables, if any

Creation and initialization of objects and variables, if any

New functions, if any

Call of the new functions, if any

New code, if any

```
      if (mFlameSensor.scan() != -1) {
                  mFlameLED.set();//Linha de Código do exercício 3
                  return CENTER;
}
```

3. Implement the PUT_OUT state and verify that the robot manages to extinguish the flame in all 4 rooms. According to the contest rules, the robot must signal that it is detecting the flame before extinguishing it. The robot should do this by turning ON the red LED mounted next to the Start and Stop buttons. The robot should turn off the LED after extinguishing the flame.

Don't answer by presenting all your program. Use the following sections to present your new code. Delete what doesn't apply.

Declaration of new constants, if any

Declaration of new objects and variables, if any

```
private static Motor fan;
private static IntelliBrainDigitalIO mFlameLED;
```

Creation and initialization of objects and variables, if any

```
fan = IntelliBrain.getMotor(2);
mFlameLED = IntelliBrain.getDigitalIO(13);
mFlameLED.setDirection(true);
```

New functions, if any

```
      private static int putOutState() {

            fan.setPower(8);
            rotate(-4);
            wait(250);
            rotate(8);
            wait(250);
            rotate(-4);
            fan.setPower(0);



            if(mFlameSensor.scan() == -1) {
                  mFlameLED.clear();
                  mFlame = false;
            }
            else{
                        return CENTER;
                        }
            return WAIT;
      }
```

Call of the new functions, if any

```
case 3: // The flame is ahead.
                  move(4, 0); // Go forward slowly towards the flame.
                  if (getDistance(mFrontSonar) < 15) {
                        stop();
                        return PUT_OUT;
                  }
```

New code, if any