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

Nº 1

Group:

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Fill in the header record with the name and number of the group members present in class. After finishing the exercises, add the doc to your group files section.

1. Complete the following table by inspecting your robot and filling in the missing information. Signal the location of each port type by positioning the correspondent letter on top of the image.

	Type of Port	Labels	Quantity	Location
A	Servomotors	S1-S8	8	
B	Analogical	A1-A7	7	
C	Digital	IO1-IO13	13	
D	I2C	I2C	5	
E	Motor CC	M1-M2	2	
F	RS-232	COMM1	1	

2. How many devices with I2C interface can be connected to the corresponding port of the I2C IntelliBrain controller? (Tip: find out how many bits are used to address the devices).

   R: 128

3. What is the maximum current and maximum voltage supported by the DC motor ports of IntelliBrain controller?

   R: 2.6A, 7.2V??

4. Complete the following paragraph about the analog ports of the IntelliBrain controller.

   The IntelliBrian 2 has 7 analog ports that can also be configured as input. When reading the value of an analog port we obtains a value between 0 and 1023 which is proportional to the voltage between 0v and 5v applied to the port signal pin. There is also a set of special analog ports prepared to connect sensors, and are identified with the labels A4-A7.

5. Complete the following paragraph about the digital ports of the IntelliBrain controller.

   The IntelliBrian 2 has 13 digital ports that can be configured as input or output. When reading the value of a digital port we obtains a value of 0 or 1 which are respectively proportional to the voltage of 0v and 5v applied to the port signal pin.

6. Complete the following paragraph about the ports and pin arrangement.

   The ground pin for each port is always the pin more close to circuit border. The power pin is always the second nearest to the circuit border. The power pin is +5v for all ports except the servo ports and the comm2 port. The next pin third from the board edge is always the signal. On four-pin ports, the fourth pin is a second signal pin.

7. Complete the following table by inspecting your robot and filling in the missing information. Signal the location of each port type by positioning the correspondent letter on top of the image.

	Type	Label	Quantity	Location
A	LCD	NA	1	
B	Start and Stop Buttons	START STOP	1	
C	LEDs	NA	8(7 visible, 1 infrared)	
D	Buzzer	BUZ1	1	
E	Thumbwheel	RV1	1	
F	IR Receiver	NA	1	

8. Describe possible applications for the following elements of the interface:

Thumbwheel: can be used to scroll the screen of the output displayed on the LCD

Buzzer: can be used to produce beeps, play a song

LEDS: can be used for debug