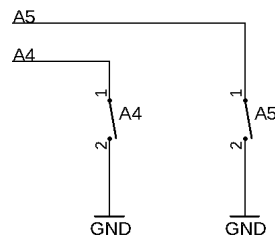


### 6.3 Pull-up resistors on digital input

On the module RobDuino we can find two “on-board push button switches”. Wiring of this switches is presented in fig. 1, where can we noticed that both switches are connected to ground voltage potential.



**Figure 1:** Wiring of on-board switches.

To properly use this on-board push-button switches we must enable the **pull-up** resistors of A4 and A5 input of microcontroller.

#### 6.3.1 Tasks:

1. Configure pins **A4** and **A5** as inputs with **pull-up** resistor.
2. At the end of the `setup()` function add the **while-loop** which will delay the execution of the program until we press the **A4** key - acting as a “START BUTTON”.
3. Use the **A5** key to stop the robot and terminate the execution of the program.

**Program 1:** Pull Up Resistors on Digital Input.

```
1  #include "RobotMovingFunctions.h"
2  const int KEY_A4 = A4;
3  const int KEY_A5 = A5;
4
5  void setup()
6  {
7      setIOpins();
8      pinMode(KEY_A4, INPUT_PULLUP);
9      // KEY_A5 setup here...
10 }
11
12 void loop()
13 {
14     moveForward();
15     //to-do: the key reading
16     bool stopTheRobotKey = 0;
17     if (stopTheRobotKey == 1)
18     {
19         stopTheRobot();
20         exit(0);          //terminate the program
21     }
22 }
```

**6.3.2 Questions:**

1. What is the programming instruction of reading the value from digital input?
2. Which values can be assigned to **bool** type variable?
3. Explain the programming instruction `exit(0)`.

**6.3.3 Summary:****6.3.3.1 <++> <++>****6.3.4 Issues:****6.3.4.1 <++> <++>**