# Arduino UNO IO Library for Codesys on Raspberry

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Date: 11.09.2014
Version: 1.1.0.0

**Order of steps is important!**
**You can brick your Raspberry if you connect Arduino's 5V to Raspberry's 3.3 V!**

**→ Be sure to upload the Arduino sketch before wiring and connecting the devices!**
**Or use a level shifter 3.3 <-> 5.0**

**Step 1:** Upload the Arduino UNO sketch slave.ino
It is responsible for I2C communication and IO functionality of the Arduino.
Define for each Arduino the variable I2C_ADDRESS before flashing (number between 1 and 127).

All steps from here are in Codesys
**Step 2:** Install device ArduinoUNO.devdesc.xml

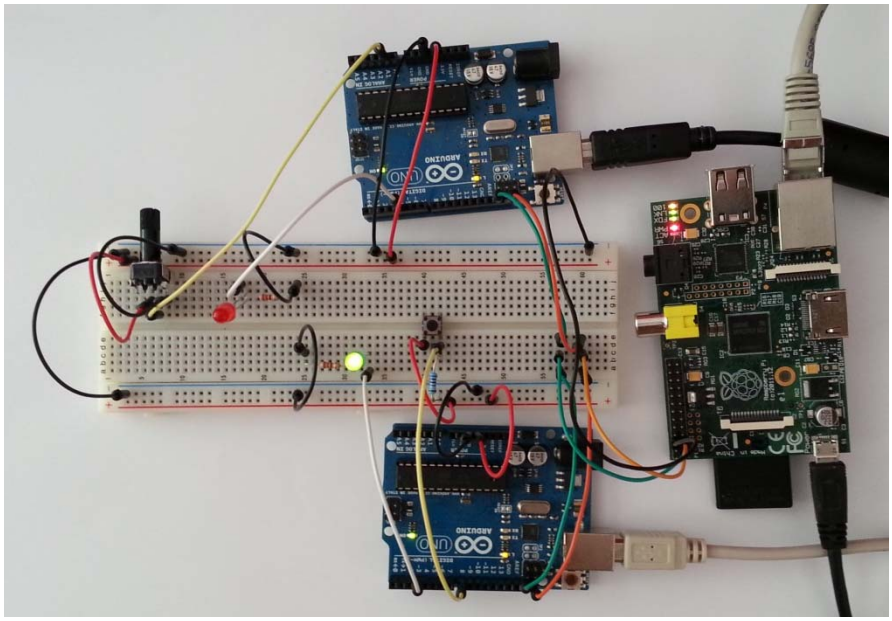
**Step 3:** Install library IoDrvArduinoUNO.library

**Step 4:** Configure your Arduino UNO in the setting tab with I2C address and IOs.
Use your Arduinos like any other IO device!

**Remarks:**
Arduino UNO's analog input A4 and A5 are used for I2C. So you cannot use them with this library.
Analog input is 10 bit.
Analog output (PWM) is 8 bit.
In each cycle the raspberry sends 12 bytes to the Arduino and receives 10 bytes from the Arduino (independently from the settings).

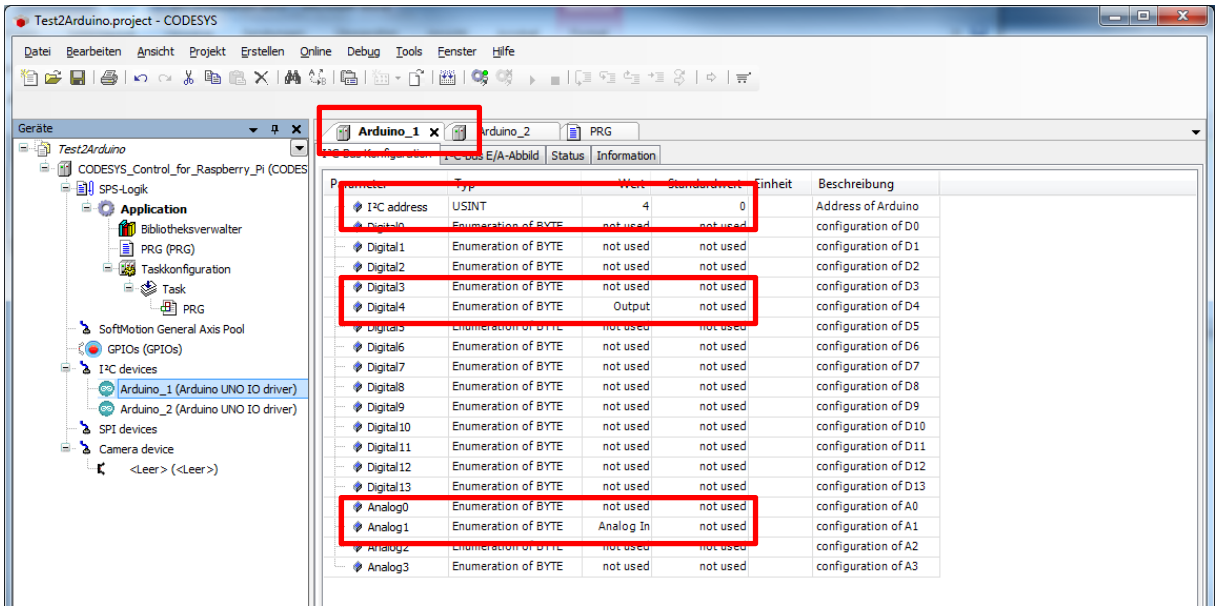
**Example:**
Two Arduino UNO and one raspberry
connected with I2C (SDA and SCL), same ground
Arduino_1: - Pin D4 is used for digital output
- Pin A1 is used for analog input
Arduino_2: - Pin D3 is used for analog output (PWM)
- Pin D8 is used for digital input

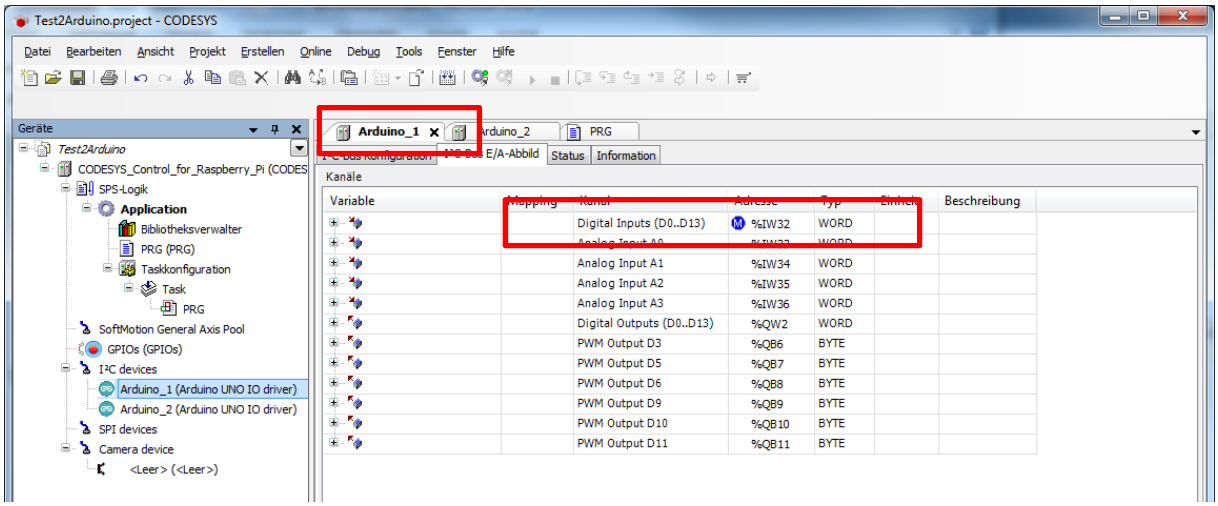
A potentiometer is attached to the analog input of Arduino_1.
A button is attached to the digital input of Arduino_2.
LEDs are attached to the outputs.



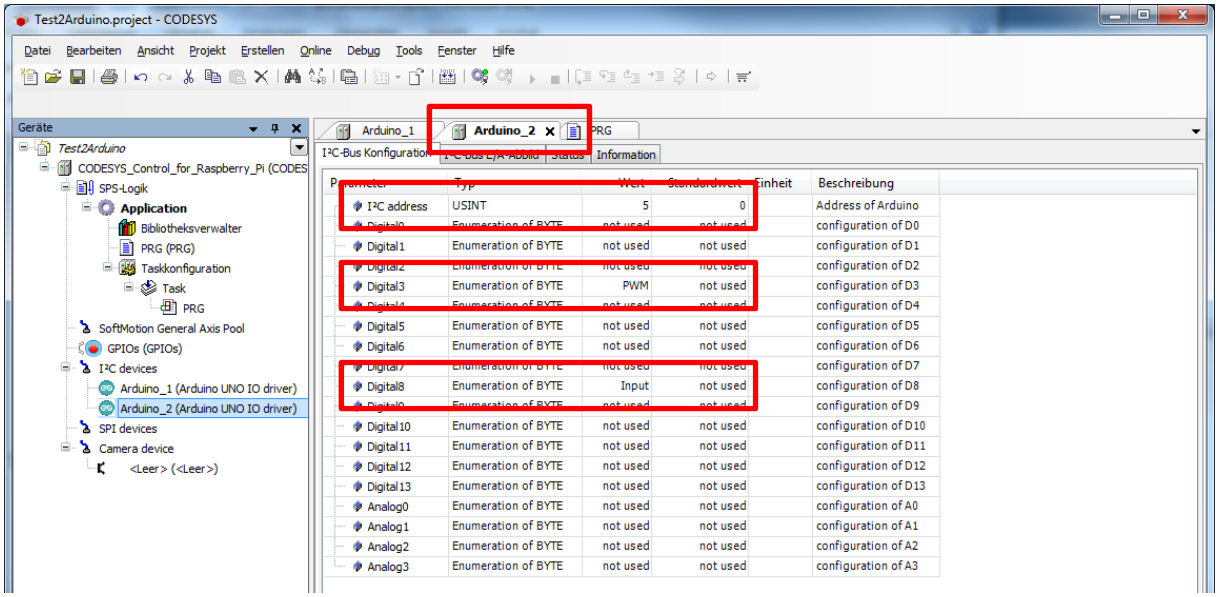
**Codesys screenshots:**

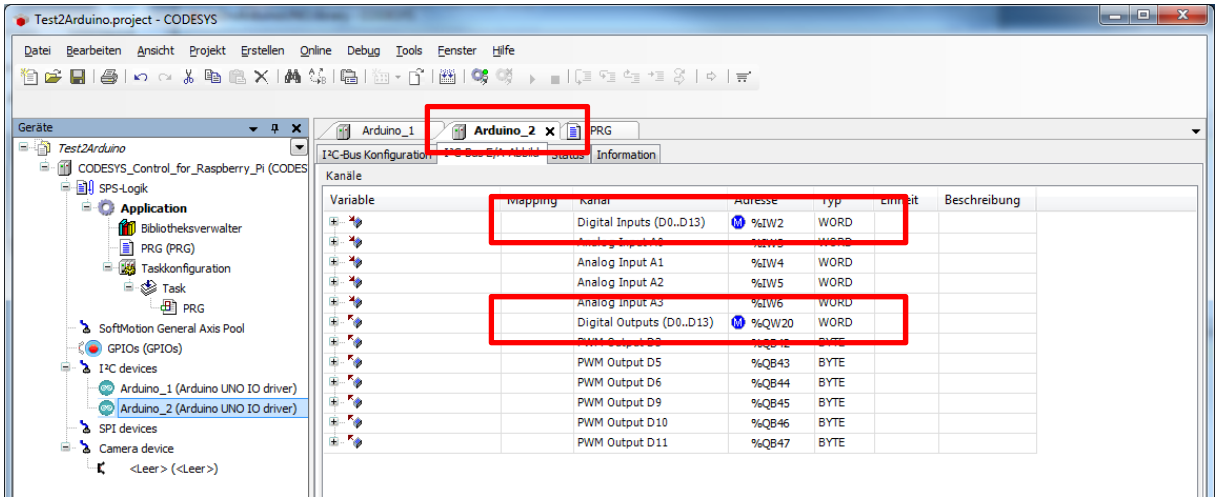
Configuration of Arduino 1:



Configuration of Arduino 2:



Main program: