

## ShowCase

### *Automation & Control based on Open Source Hardware, ready for the IoT re-evolution.*

#### Products

Arduino-based PLCs

#### Results

- Easy to program using Open Source and free platforms
- Use of the Arduino IDE

#### Project Details

- Possibility to expand up to 127 modules through I2C
- 7100 Inputs/Outputs in Master-Slave connections
- Part of the IoT40 project to allow programming the PLC using

#### Introduction

*Industrial Shields* designs and produces the first equipment based on the Arduino for a professional use. These modular PLC's can have from 19 Inputs and Outputs to 58 depending on the model. They also contain several communication ports, which provide a great flexibility and control. The Industrial Shields PLC family offers the possibility to expand up to 127 modules through I2C, which means that you can have until 7100 Inputs/Outputs in Master-Slave connections, additionally to sensors, etc. These PLC's can be programmed using the Arduino IDE platform, which it can be downloaded for free. You can program it through USB ports or through Ethernet remotely. This offers an immediate access to program, maintain and control, and also to monitoring the status for all variables, inputs, outputs, processes, etc.

#### Challenges

Currently one of the challenges for a great adoption of our product is to have a software platform/interface that allows the final user to program the PLC in an easy way, like most of the matures PLC's of the market from the worldwide key players like Siemens, Omron, Rockwell Automation, etc.

It is really easier and faster for the users to program the PLC's with an interface rather than using lines of code. The problem is that if you get a PLC from a supplier, you will need that supplier's software. And if there's a software improvement or upgrade, you will probably be charged for this. On the other side, the Arduino IDE can be downloaded for free, and even connect-communicate with other brands equipment.

#### Solution

The solution for this great challenge is the IoT40 project, a software program that allows the user to program the PLC using a common market interface. This solution will works on and off line, allowing the user to work in place or through the network. That way, the user will get a very similar solution to the existing in the market and he will keep the freedom and flexibility of the industrial PLC's based on Open Source Hardware.



## References

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