# SMART GARDEN PROJECT

*Pervasive System 2016 – DIAG "La Sapienza"*

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**TECHNOLOGIES**:

We used the following technologies in the Smart Garden project

**Arduino**, both the hardware platform (in the specific 1 Arduino Mega 2560 and 3 custom made Arduino-standalone ATMEGA328P@16Mhz) and the software one, means the Arduino IDE and programming language https://www.arduino.cc/

**USPASP** programmer hardware/driver , used to physically made in circuit programming on the slave stations by Arduino IDE http://www.fischl.de/usbasp/

**USB-RS232+MAX232** interface & logic level converter to provide extra serial communication with the Arduino Mega for diagnostic and debug purposes  https://en.wikipedia.org/wiki/MAX232

**Blynk** to provide in the cloud data forwarding and client app to Android/IOS devices, used to visualize actual data from the smart garden, including soil humidity levels at the plants http://www.blynk.cc/

**ThingSpeak** service for IoT to provide in the cloud data collection and graphic visualization of collected data points and also to trigger a react for generating email alerts using PushingBox web service https://thingspeak.com/

**PushingBox** service for IoT, an Internet based service to provide email sending from devices, in our case PushingBox actions are controlled directly by events captured at ThingSpeak data collection facility https://www.pushingbox.com/

**ExtremeAVRBurner or avrdude** AVR programming software: http://extremeelectronics.co.in/avr-tutorials/gui-software-for-usbasp-based-usb-avr-programmers/   ,   http://www.nongnu.org/avrdude/ use one of these tools to program just once the ATmega328Ps fuse bits (required to make them run at 16Mhz clock external oscillator)