FUTURA



Autor: Nikša Vlahušić

SADRŽAJ

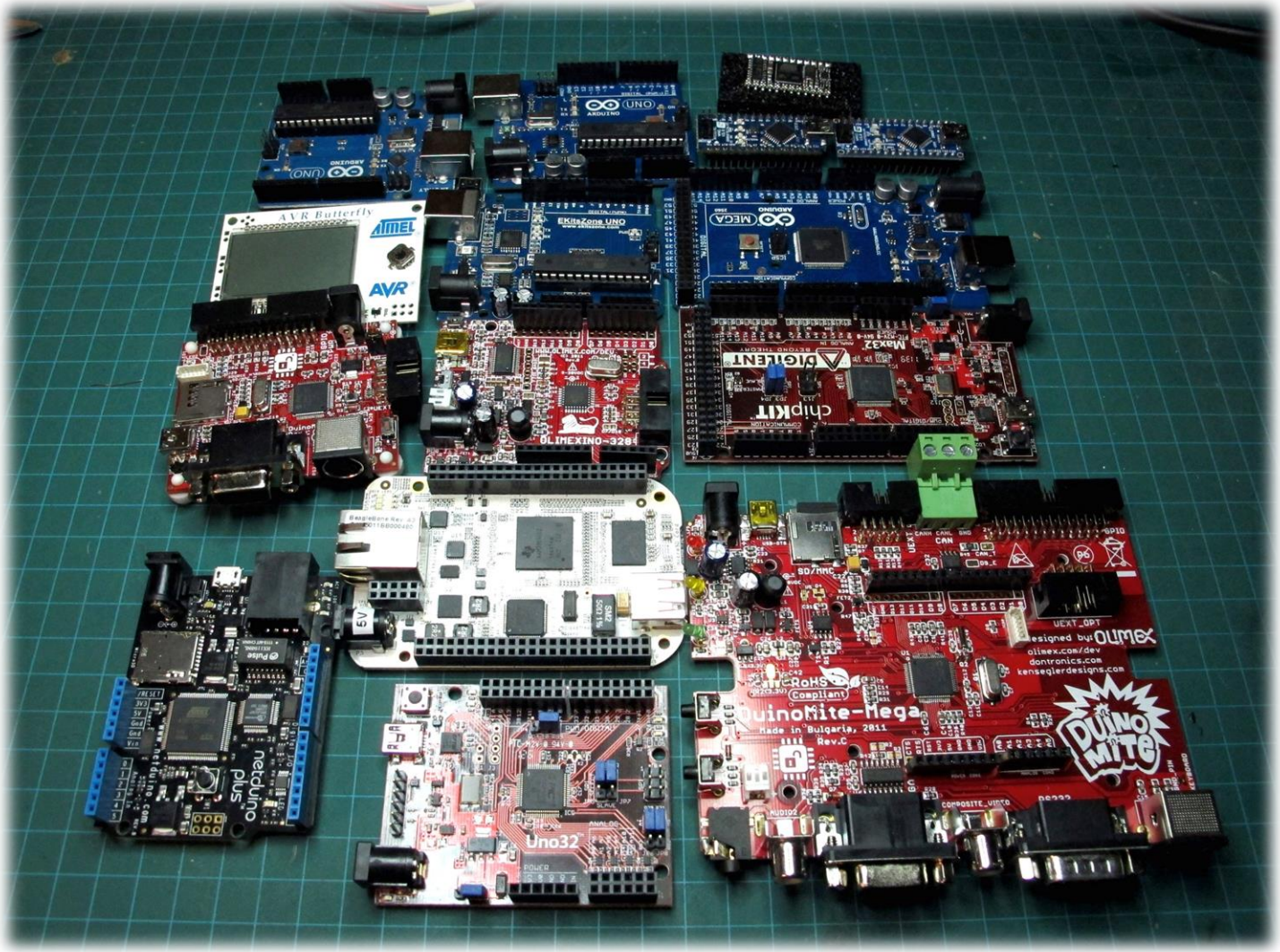
- Što je Arduino? (30min)
  - Arduino općenito
  - Arduino hardware
  - Arduino software

- Demonstracije (1h)
  - LED
  - IR senzor
  - US senzor
  - Foto dioda
  - Sklopka
  - Senzor za vibracije
  - Senzor za vlagu

ARDUINO OPĆENITO

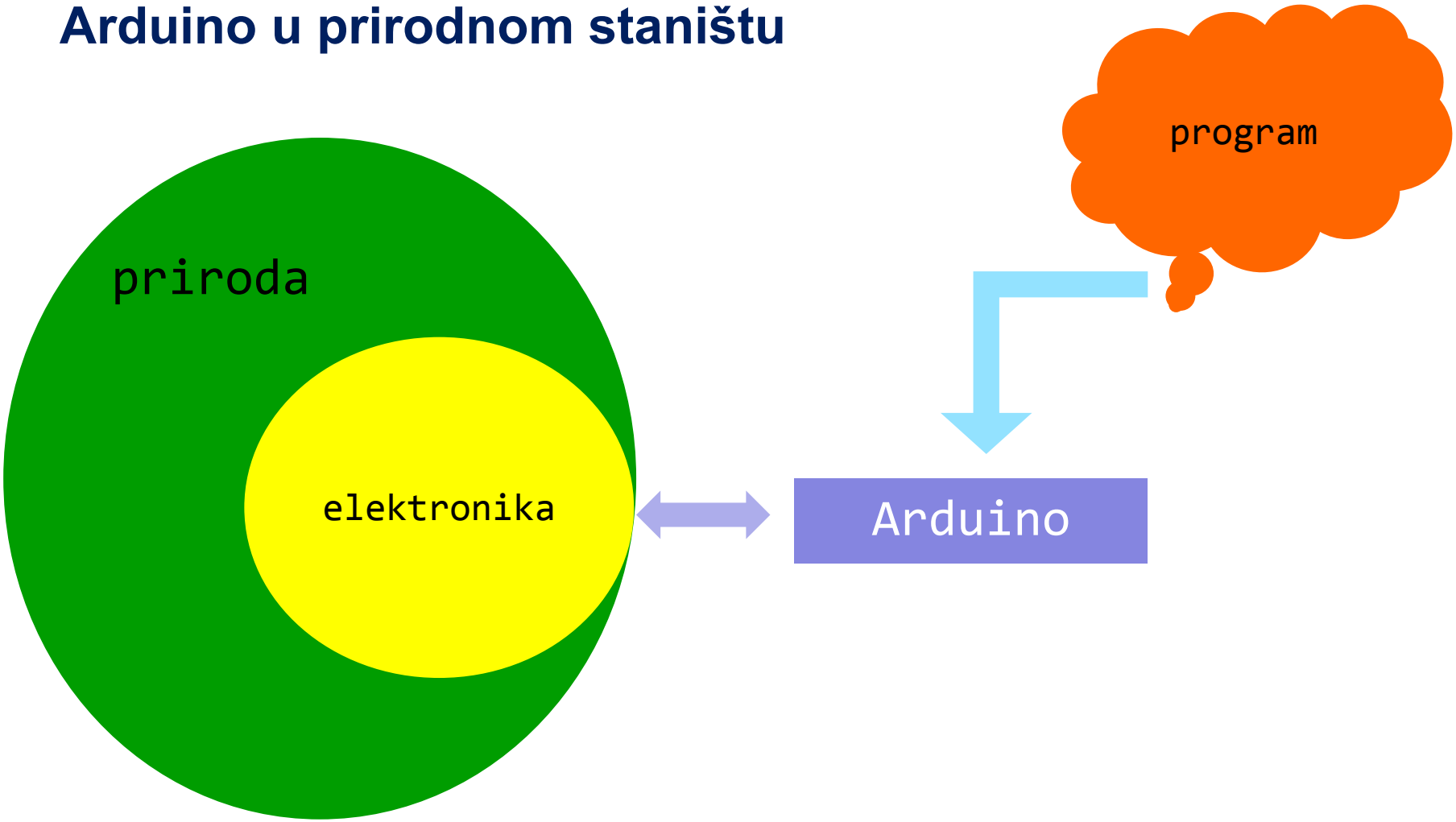
- Kontrolna ploča s mikroprocesorom i ulazno-izlaznim elementima
- Čitanje inputa sa senzora, upravljanje motorima, svjetlima i sličnim fizikalnim komponentama
- Programiranje pomoću jednostavnog sučelja, u jezcima C i C++
- Open-source (otvoreni kod) - dostupan javnosti na uvid, korištenje, izmjene i dijeljenje

ARDUINO


AVR Butterfly
Atmel
AVR
OLIMEXINO-328
chipKIT
netduino plus
Uno32
SD/MMC
CAN
UEXT_OPT
olimex.com/dev
dontronics.com
kenseglerdesigns.com
RoHS
Compliant
Made in Bulgaria, 2011
Rev.C
DUINO MITE

ARDUINO OPĆENITO

Arduino u prirodnom staništu



ARDUINO OPĆENITO

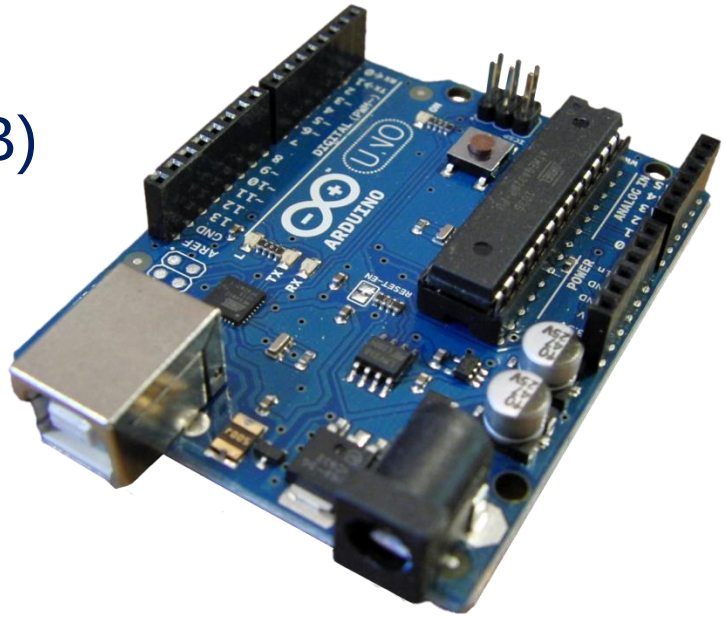
Arduino u primjeni od 2005.

- **DIY (Do It Yourself) projekti**
- **Školski projekti**
- **Poslovne i komercijalne primjene**
- **Istraživačke primjene (CERN)**
- **Vojska**
- **Meterologija**
- **Agrokultura**
- **Energetika**
- **Ekologija**
- **Robotika**

ARDUINO HARDWARE

Arduino UNO

1. Atmel 8-bit AVR mikrokontroler / 32-bit ARM
2. Pomoćni elementi
3. Ulaz za napajanje
4. Ulaz za programiranje (USB)
5. 14 digitalnih ulaza/izlaza
6. 6 analognih ulaza



ARDUINO HARDWARE

Memorija:

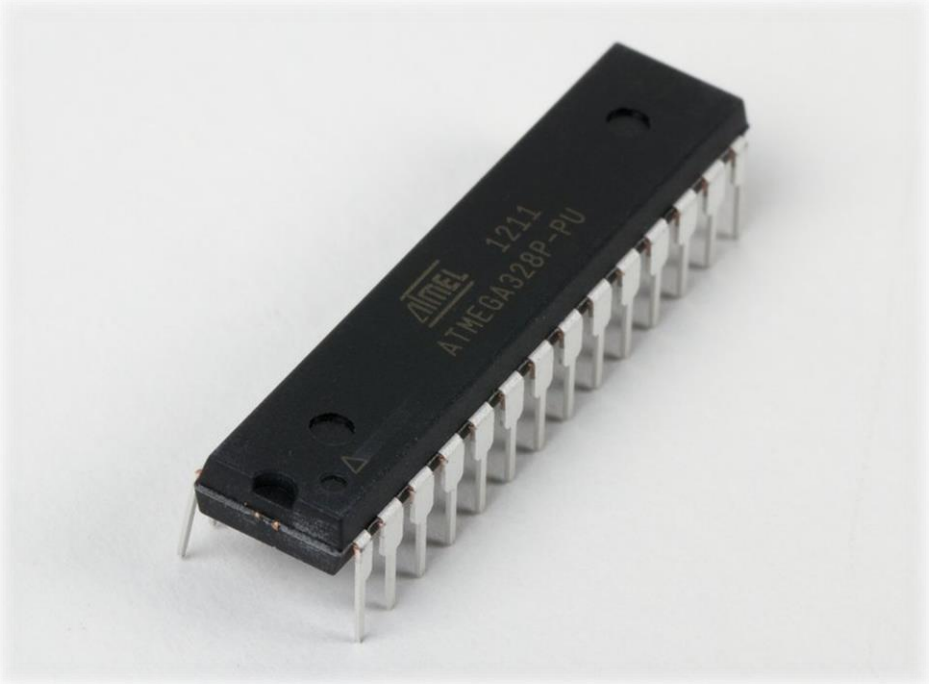
Flash - 32KB

EEPROM - 1KB

RAM - 2KB

Brzina do 20 MHz

8 bit RISC arhitektura



ARDUINO HARDWARE



1. LED diode
2. motori
3. antene
4. laseri
5. termo senzori
6. foto senzori
7. GPS
8. magnetizam
9. akcelerometar
10. Ultrazvučni senzori
11. Infracrveni senzori
12. WiFi moduli
13. Bluetooth moduli
14. 315MHz, 433MHz, RF moduli
15. Shields

ARDUINO SOFTWARE

Software paketi

1. Arduino IDE (Integrated development environment) – napisan u Java jeziku.
    1. Oznake ispravne sintakse
    2. Uparivanje zagrada
    3. Automatsko formatiranje
    4. One click kompajliranje i upload
    5. C/C++

2. Arduino bootloader
    1. Već integriran u mikrokontroler
    2. Programira se preko RS-232 konekcije
    3. USB to serial (FTDI FT232)

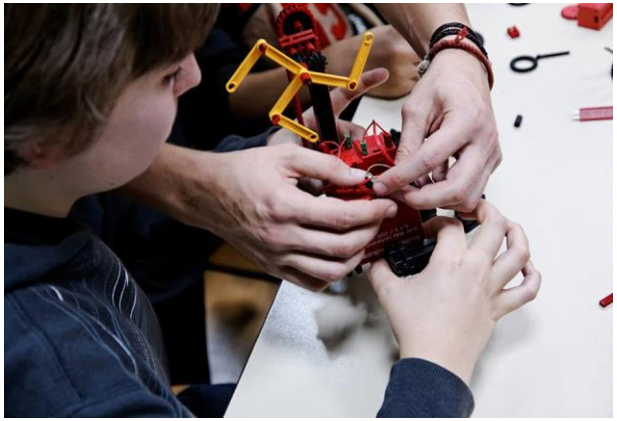
ARDUINO SOFTWARE

```
#define LED_PIN 13
void setup() {
        pinMode(LED_PIN, OUTPUT);       // Enable pin 13 for digital output
}
void loop() {
        digitalWrite(LED_PIN, HIGH);   // Turn on the LED
        delay(1000);                   // Wait one second (1000 milliseconds)
        digitalWrite(LED_PIN, LOW);           // Turn off the LED
        delay(1000);                   // Wait one second
}
```

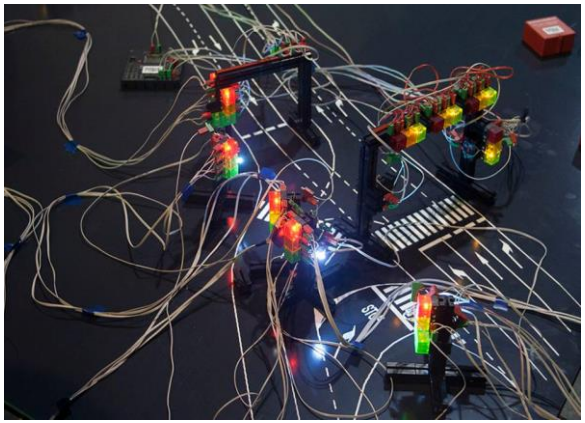
fischertechnik













Hvala na pažnji!

