

# EasyHome

Esame di stato 2015/2016

## Gruppo

- Gorla Andrea (Capo) – Applicazione C#
- Bestetti Andrea – Applicazione C#
- Ferraioli Mattia – Arduino
- Galimberti Alberti – Documentazione e Visualizzazione dati
- Lazzara Vincenzo – Sito Web

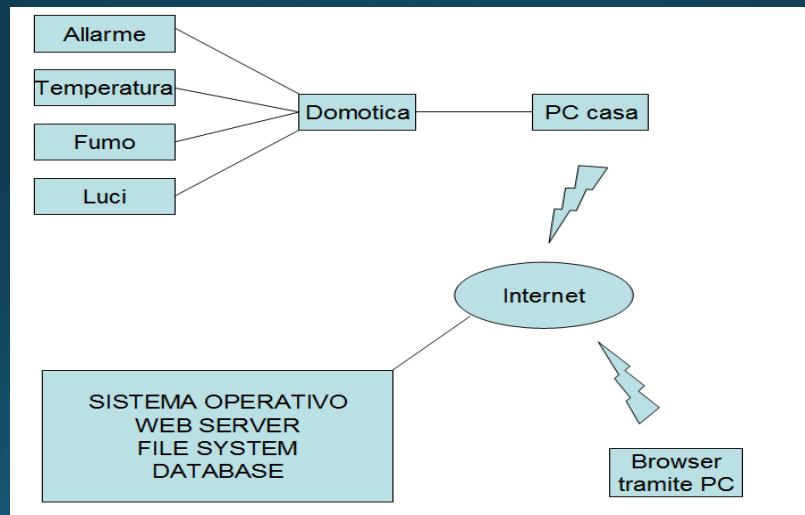
## Scopo del progetto

- Progettare un'applicazione in grado di:
  - Monitorare la temperatura
  - Rilevare presenza di fumo
  - Rilevare possibili intrusioni
  - Accensione/Spegnimento luci

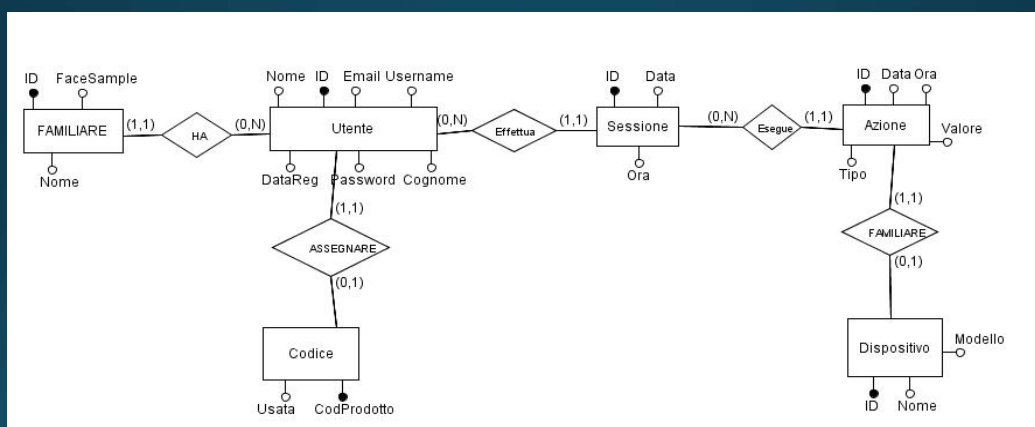
## Componenti

- Arduino UNO
  - Sensore DALLAS 18B20 (Temperatura)
  - Sensore MQ-2 (Fumo)
  - Sensore PIR (Presenza)
  - LED (Luci)
  - Breadboard
- Computer

# Architettura



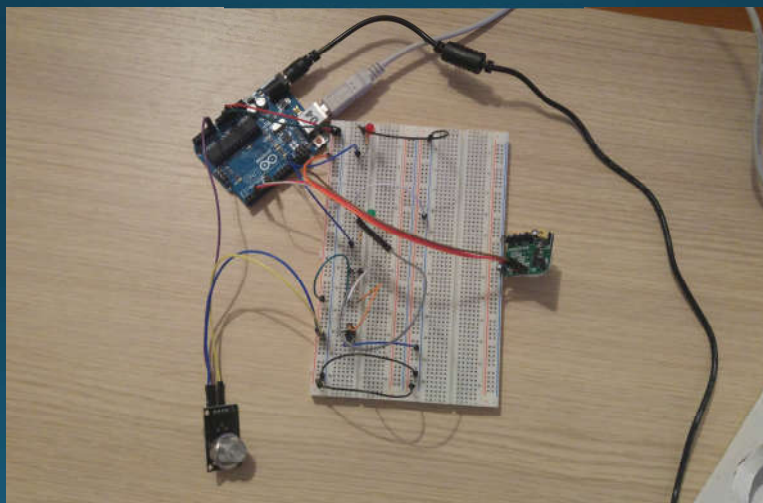
# Schema ER



# Ambienti di sviluppo

- Visual Studio (C#):
  - Semplifica l'interazione con i componenti (Webcam, Arduino)
- Arduino IDE:
  - Utilizzato per la gestione dei componenti hardware
- NotePad++ (HTML, PHP, CSS):
  - Realizzazione sito web

## Arduino



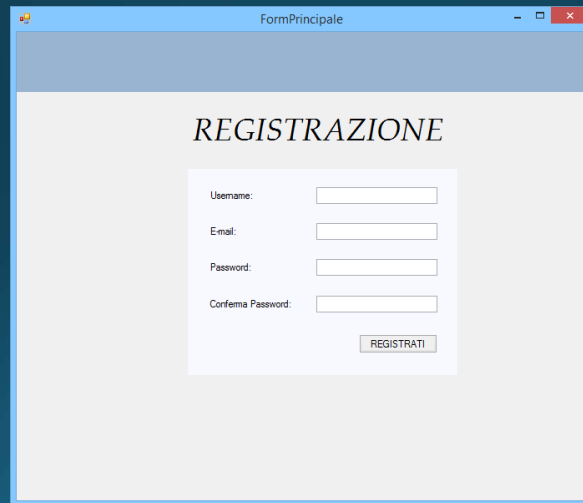
## Sito WEB



## Funzionamento

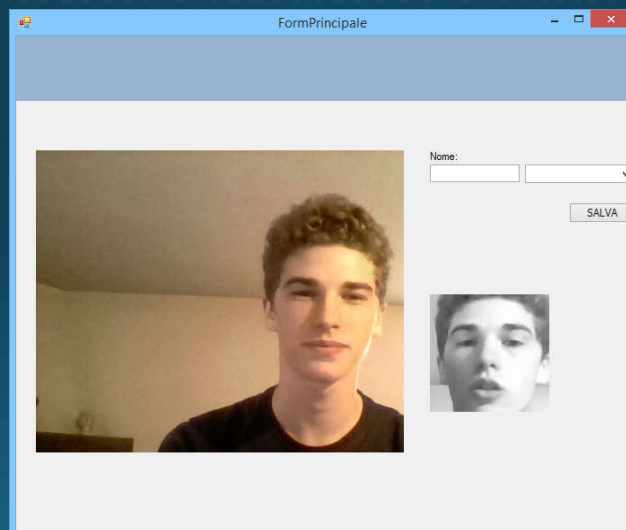
1. Registrazione
2. Riconoscimento facciale
3. Login
4. Gestione sensori
5. WebCam
6. Visualizzazione dati

# Registrazione



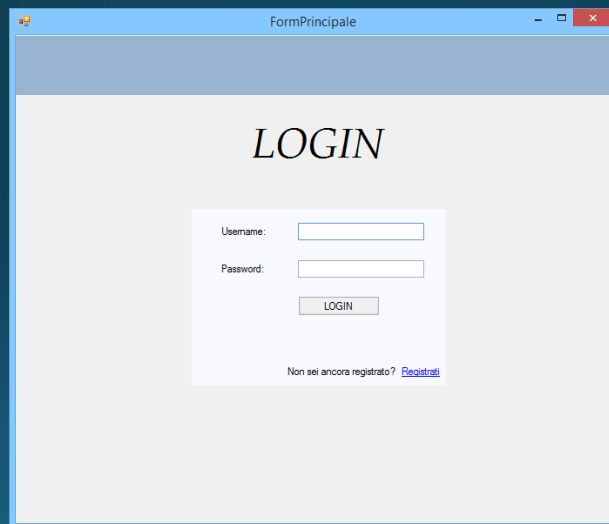
The screenshot shows a Windows-style window titled "FormPrincipale". Inside, the word "REGISTRAZIONE" is centered in a serif font. Below it is a registration form with four input fields: "Username:", "Email:", "Password:", and "Conferma Password:". A "REGISTRATI" button is located at the bottom right of the form.

# Riconoscimento facciale



The screenshot shows the same "FormPrincipale" window, but now it displays a facial recognition interface. On the left is a large video feed showing a young man. To the right of the video feed is a smaller, processed image of the same man's face. Above the processed image is a "Nome:" label followed by a text input field and a dropdown menu. A "SALVA" button is positioned below the dropdown menu.

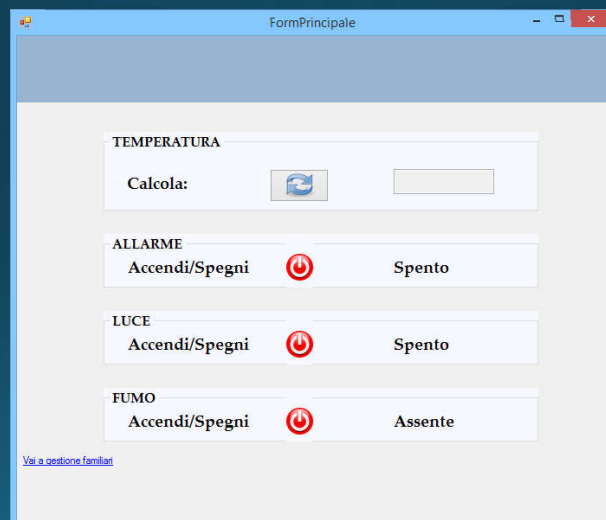
# Login



The screenshot shows a web browser window titled "FormPrincipale" displaying a login page. The page has a light gray background with the word "LOGIN" in a large, italicized, black serif font at the top center. Below the title, there is a white rectangular form containing the following elements:

- A label "Username:" followed by a text input field.
- A label "Password:" followed by a text input field.
- A "LOGIN" button.
- A link at the bottom that says "Non sei ancora registrato? [Registrati](#)".

# Gestione sensori

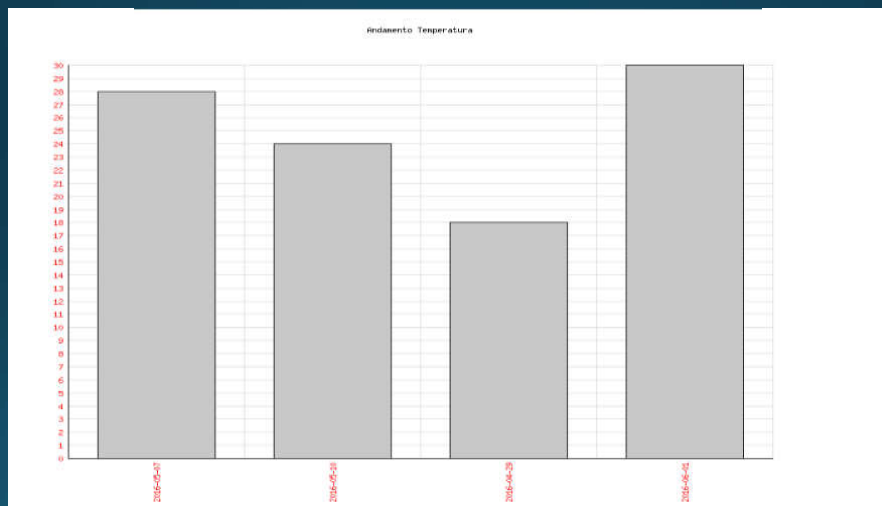


The screenshot shows a web browser window titled "FormPrincipale" displaying a sensor management interface. The page has a light gray background. The interface is organized into several sections:

- TEMPERATURA**: A section with a "Calcola:" label, a circular refresh icon, and a text input field.
- ALLARME**: A section with a "Accendi/Spegni" label, a red power button icon, and the text "Spento".
- LUCE**: A section with a "Accendi/Spegni" label, a red power button icon, and the text "Spento".
- FUMO**: A section with a "Accendi/Spegni" label, a red power button icon, and the text "Assente".

At the bottom left of the interface, there is a link that says "Vai a gestione familiari".

# Visualizzazione dati



# Problematiche

- Utilizzo libreria EMGU CV
- Concorrenza sensori
- Gestione sensore PIR
- Utilizzo libreria PHPGraphLib
- Implementazione codice



## Sviluppi futuri

- Applicazione Android
- Aggiunta sensori
- Aggiunta telecamere
- Nuove funzionalità