

Real-Time Data Center Security Monitor

Elaborato Real-Time Embedded Systems

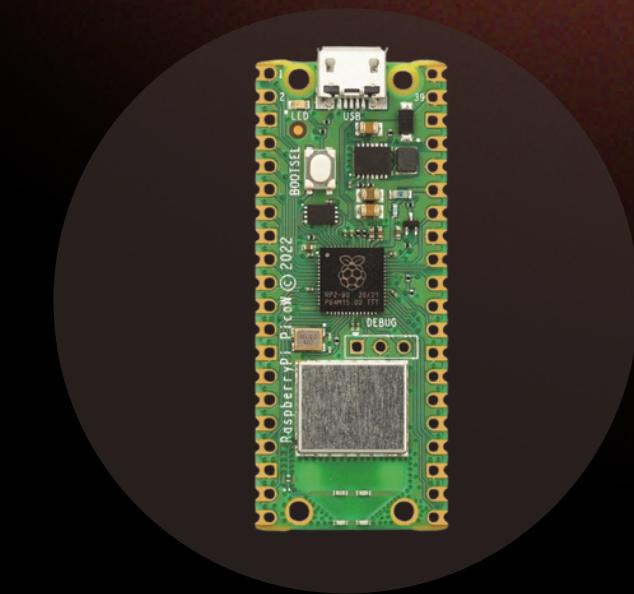
Edoardo Marinelli

Panoramica dell'elaborato

Sistema di monitoraggio
in tempo reale per la
sicurezza di un data
center con:

- Controllo ambientale
(temperatura e umidità)
- Rilevamento movimenti
- Gestione accessi tecnici
- Dashboard web per
monitoraggio remoto

Componenti hardware

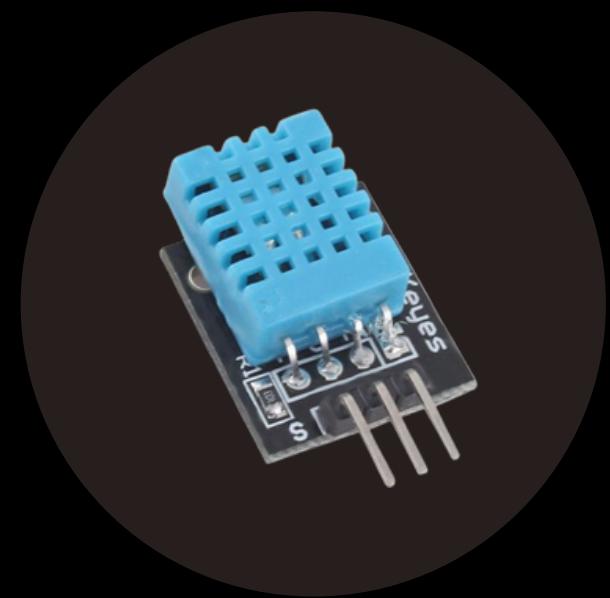


Raspberry Pi Pico W

Scheda
microcontrollore



Componenti hardware



DHT11

Sensore di
temperatura e
umidità



PIR

Sensore di
movimento

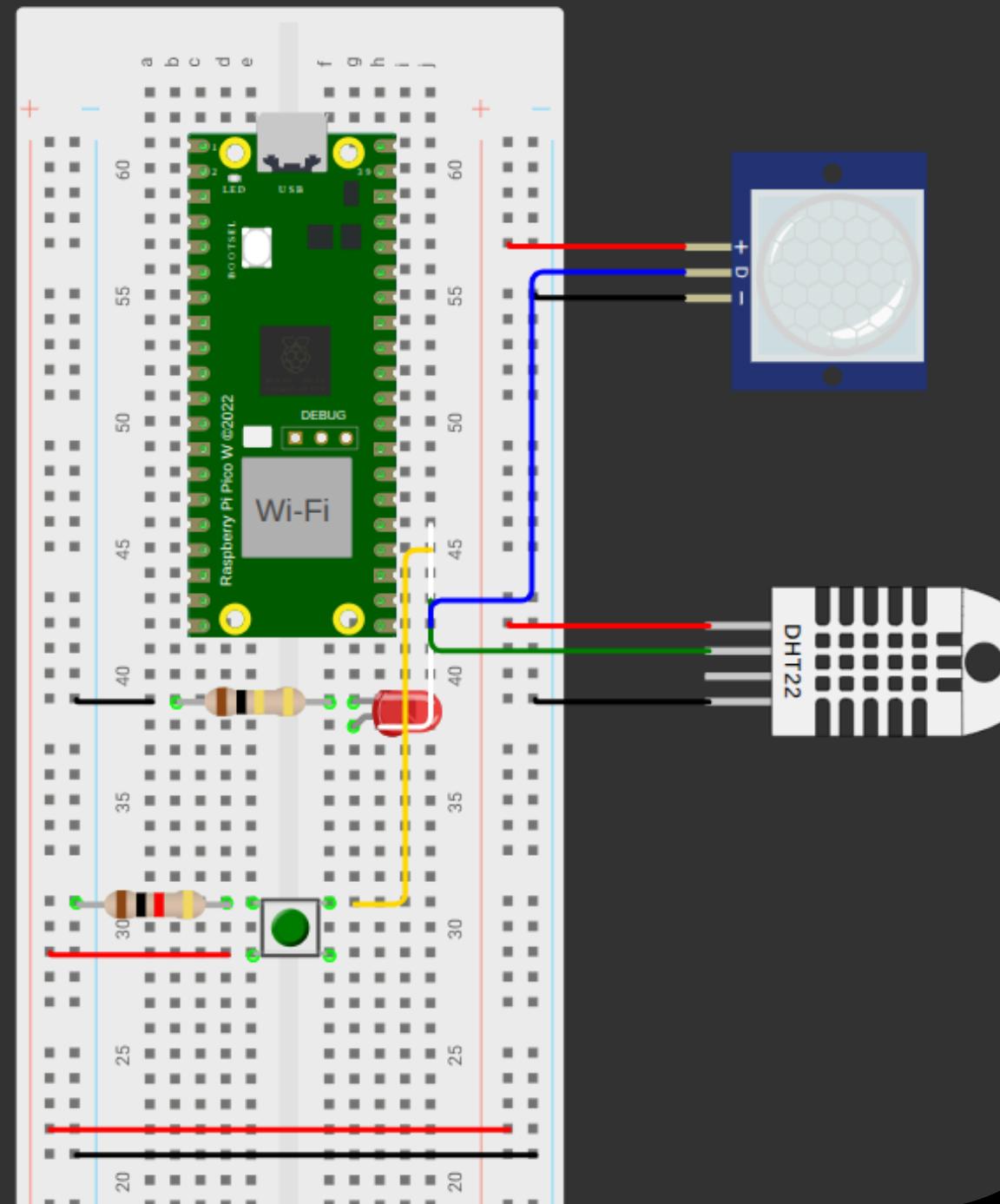


Pulsante



LED

Cablaggio



Architettura del sistema



Struttura topics ROS2

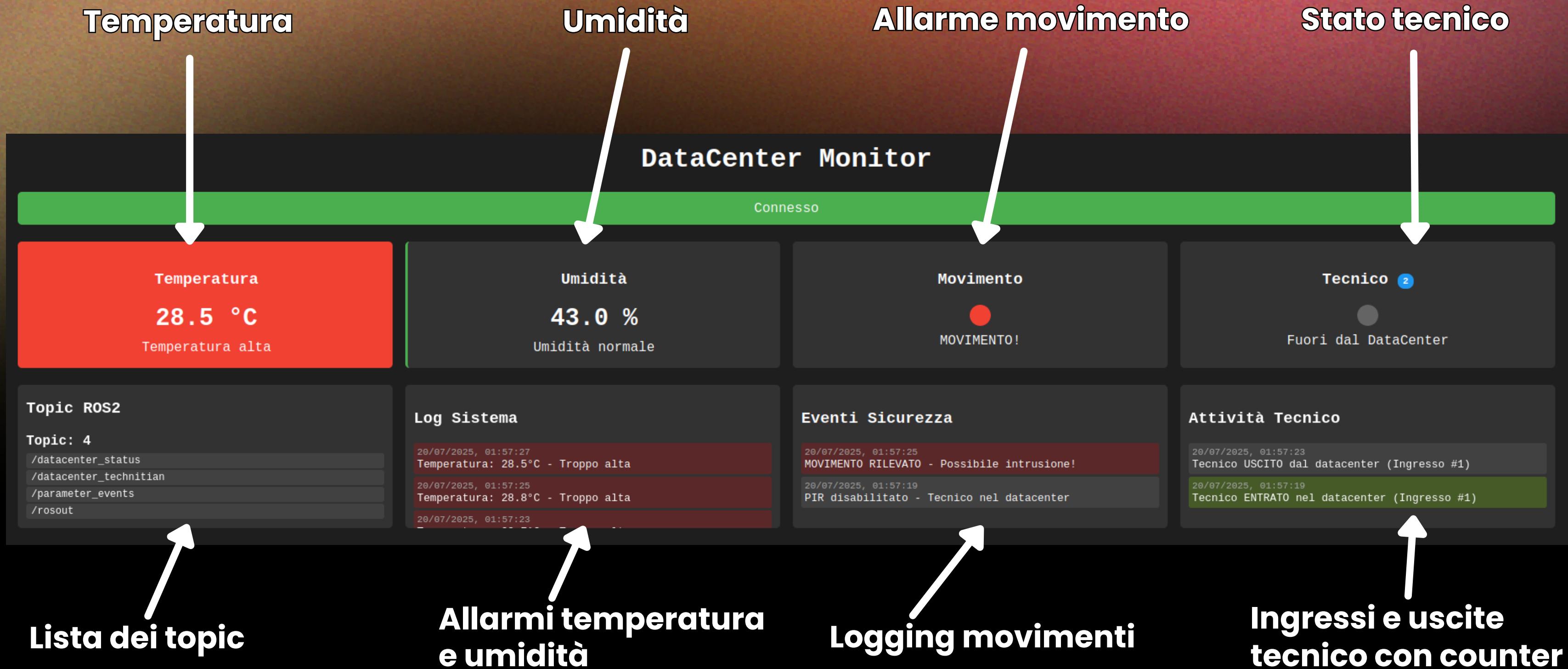
/datacenter_status

```
{  
    "temp": 29,  
    "hum": 51,  
    "motion": false,  
    "motion_attributed_to_tech": false,  
    "tech_inside": false,  
    "pir_enabled": false  
}
```

/datacenter_technitian

```
{  
    "entry_time": "00:00:14.378",  
    "exit_time": "00:00:16.780",  
    "entry_counter": 1,  
    "tolerance_period_end": "00:00:17.780"  
}
```

Dashboard Web



Dimostrazione