

# Incontro frontale con gli studenti di più classi dell'Istituto Tecnico "Galilei" di Crema



# Lezione frontale: I.O.T. (Internet of Thing) collegata alla Domotica. Progettare un concetto di home automation.



## Internet of things

Che cos'è?

Letteralmente “Internet degli oggetti” è l'espressione oramai utilizzata da qualche anno per definire la rete delle apparecchiature e dei dispositivi, diversi dai computer, connessi ad Internet:

Possono essere sensori, automobili, telecamere, pezzi di arredamento, elettrodomestici, container per il trasporto merci...

Qualunque dispositivo elettronico equipaggiato con un software che gli permetta di scambiare dati con altri oggetti connessi.



# Principali ambiti di applicazione dell' I O T

## Libelium Smart World

### Air Pollution

Control of CO<sub>2</sub> emissions of factories, pollution emitted by cars and toxic gases generated in farms.

### Forest Fire Detection

Monitoring of combustion gases and preemptive fire conditions to define alert zones.

### Wine Quality Enhancing

Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar in grapes and grapevine health.

### Offspring Care

Control of growing conditions of the offspring in animal farms to ensure its survival and health.

### Sportsmen Care

Vital signs monitoring in high performance centers and fields.

### Structural Health

Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

### Quality of Shipment Conditions

Monitoring of vibrations, strokes, container openings

### Smartphones Detection

Detect iPhone and Android devices and in general any device which works with Wifi or Bluetooth interfaces.

### Perimeter Access Control

Access control to restricted areas and detection of people in non-authorized areas.

### Radiation Levels

Distributed measurement of radiation levels in nuclear power stations surroundings to generate leakage alerts.

### Electromagnetic Levels

Measurement of the energy radiated by cell stations and WiFi routers.

### Traffic Congestion

Monitoring of vehicles and pedestrian affluence to optimize driving and walking routes.

### Smart Roads

Warning messages and diversions according to climate conditions and unexpected events like accidents or traffic jams.

### Smart Lighting

Intelligent and weather adaptive lighting in street lights.

### Intelligent Shopping

Getting advices in the point of sale according to customer habits, preferences, presence of allergic components for them or expiring dates.

### Noise Urban Maps

Sound monitoring in bar areas and centric zones in real time.

### Water Leakages

Detection of liquid presence outside tanks and pressure variations along pipes.

### Vehicle Auto-diagnosis

Information collection from CarBus to send real time alarms to emergencies or provide advice to drivers.

### Item Location

Search of individual items in big surfaces like warehouses or harbours.

### Waste Management

Detection of rubbish levels in containers to optimize the trash collection routes.

### Smart Parking

Monitoring of parking spaces availability in the city.

### Golf Courses

Selective irrigation in dry zones to

### Water Quality

Study of water suitability in rivers and the



# Tra le mura di casa... Le applicazioni possibili sono già moltissime e in continuo aumento: elettrodomestici grandi o piccoli, porte blindate e finestre, impianti di climatizzazione ecc...

## Quale sarà l'impatto sull'ambiente?

Secondo fonti autorevoli, gli oggetti connessi permetteranno di ottimizzare in tempo reale processi produttivi ed attività economiche riducendo in maniera sensibile l'inquinamento ed il consumo di risorse

