

“ENERGY EFFICIENCY INTERVENTIONS IN PUBLIC SCHOOL BUILDINGS: TECHNICAL INSTITUTE “ARTURO MALIGNANI” EXAMPLES.”



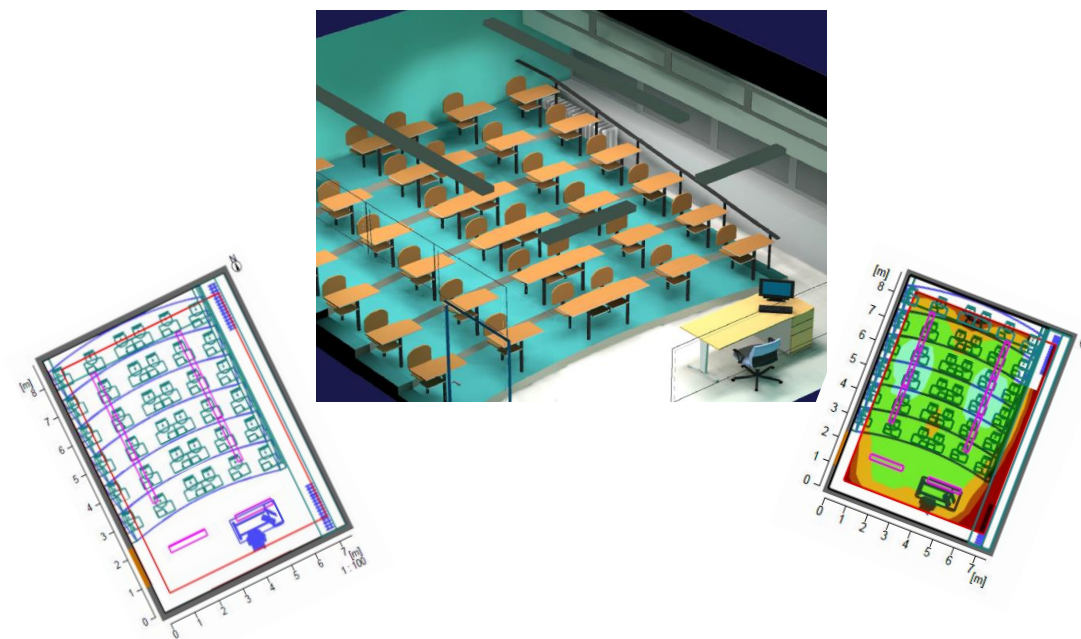
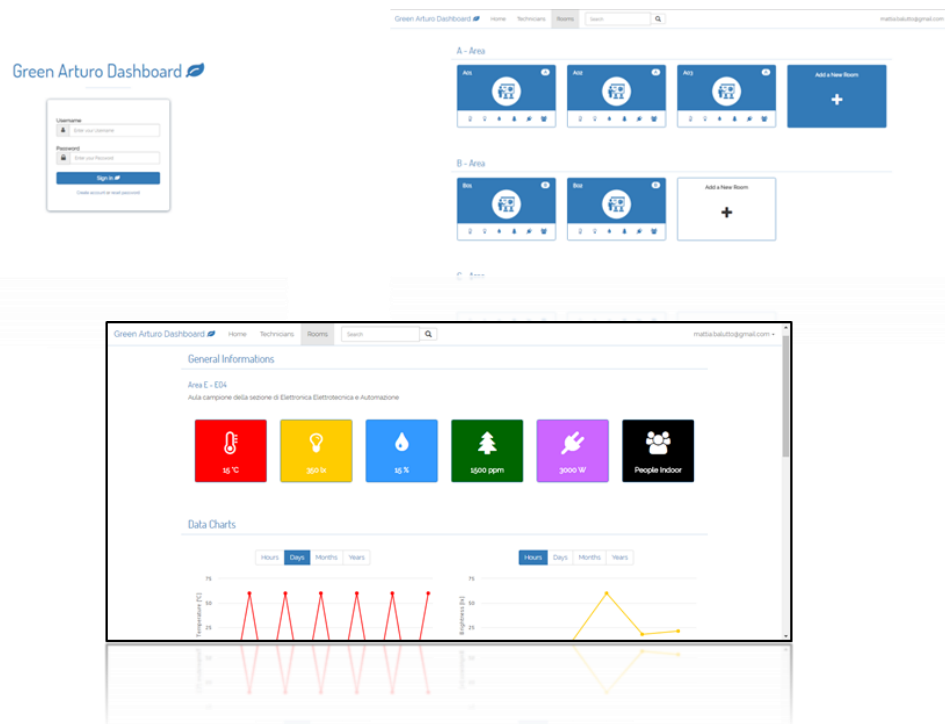
Green Technologies Award 2017

«Team Green Arturo 2K17» studies and proposals
Stefano Comuzzi – Mattia Balutto – Marco Flaugnatti

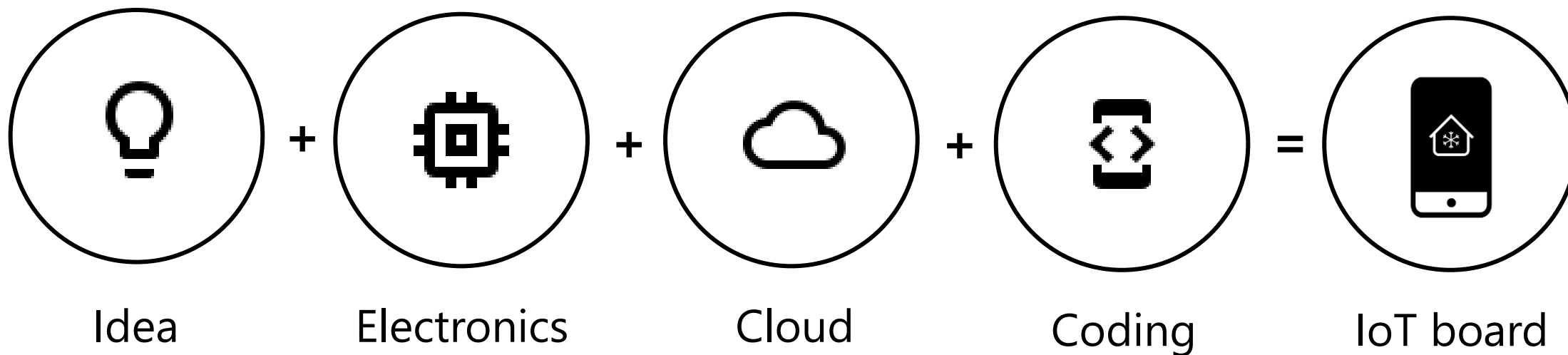
Main concepts

1) Design and implementation of an IoT board

2) Redesign and realization of the classroom lighting comparing several solutions ([video](#))

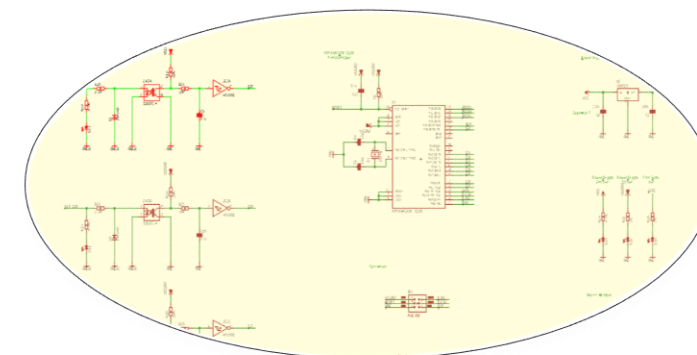
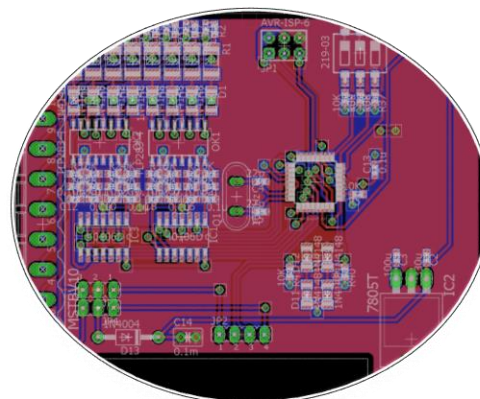
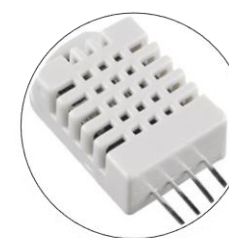


IoT board solution

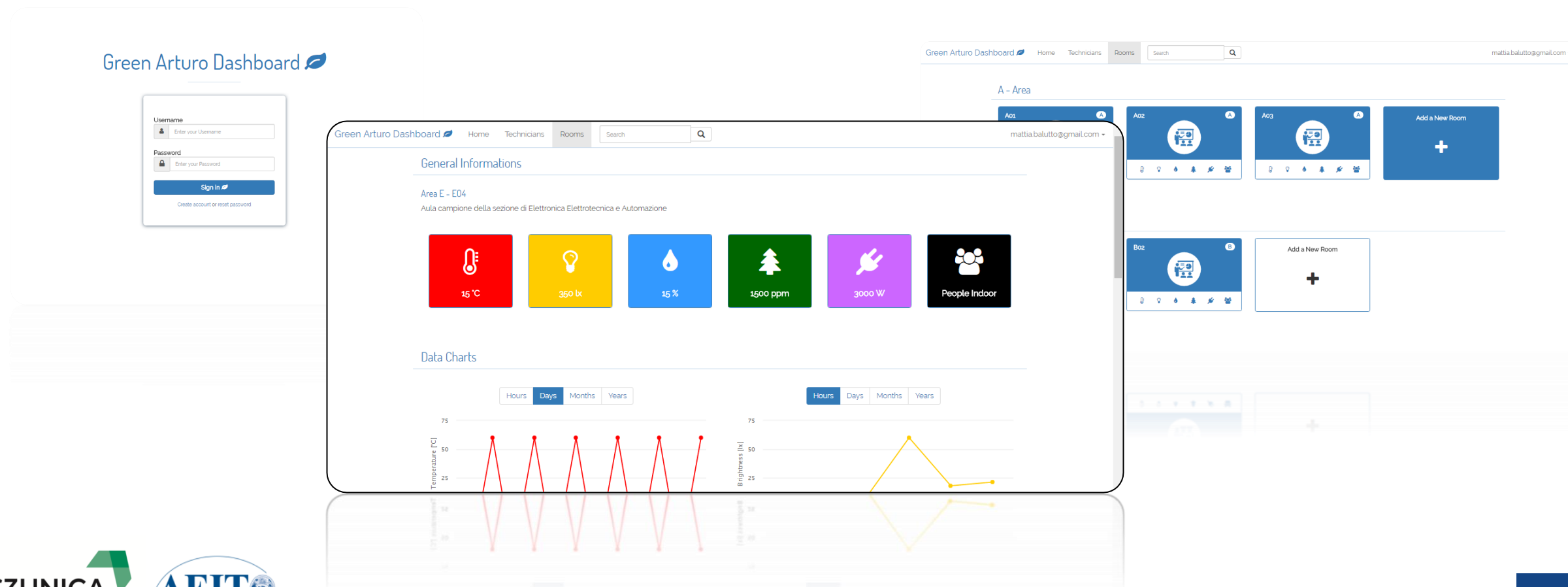


Features developed in the POC

- Measure the electric energy consumption
- Control lighting system through DALI protocol
- Check air quality (CO2 level, humidity)
- Regulation of the heating system
- Remote control dashboard



Remote control dashboard



Redesigning an outdated lighting system

- Reducing energy consumption is an objective achievable through energy efficiency

- Classroom case study:

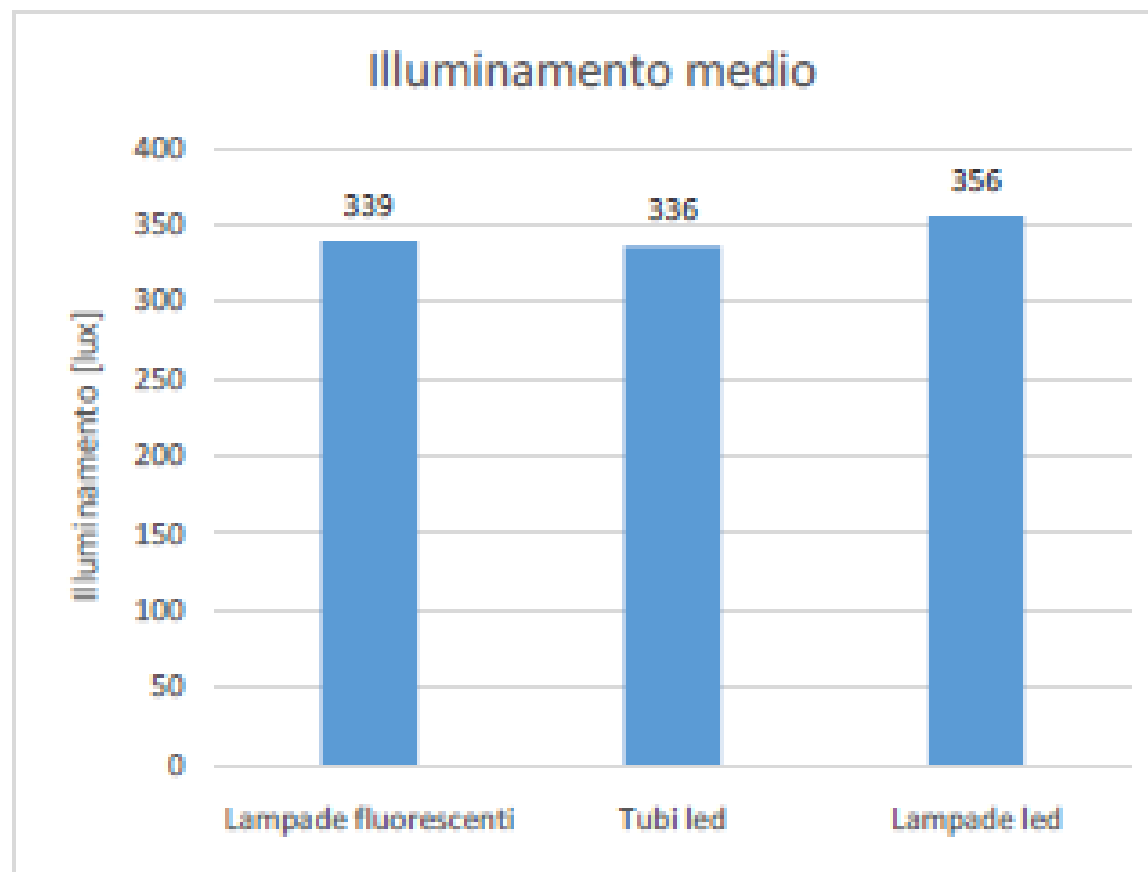
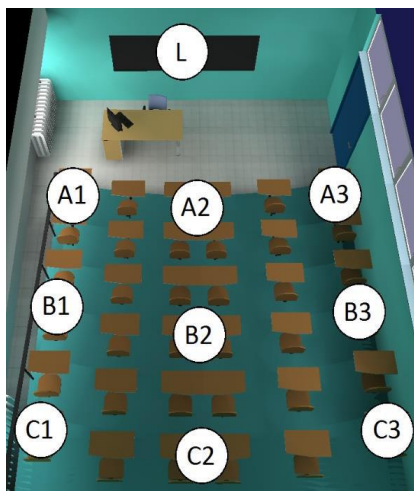
replacement of fluorescent bulbs with LEDs

introduction of movement and light sensor

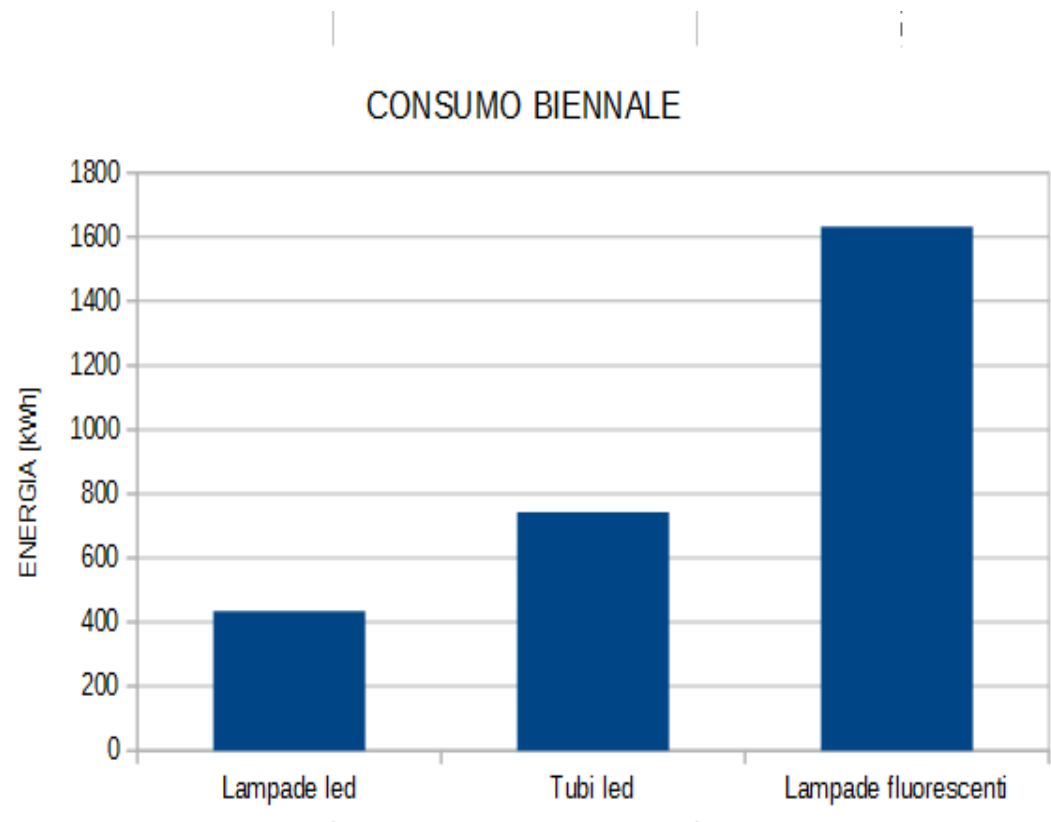
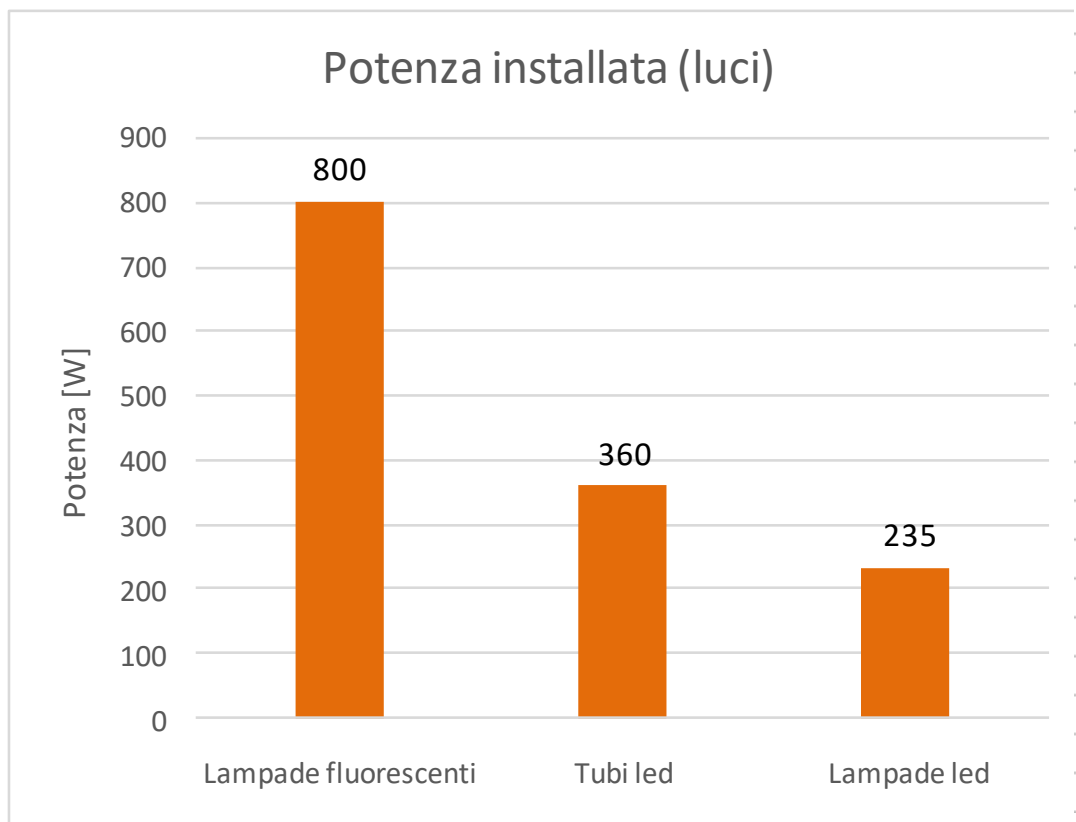
modular power meter



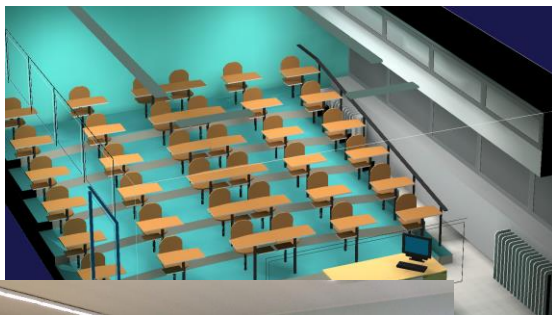
Illuminance measurements



Energy consumptions



The new «energy-saving» classroom (LEDs ceiling lights)



Energy savings

TIPO LAMPADE	ILLUMINAMENTO MEDIO [lux]	ENERGIA [kWh]	COSTI ANNUALI*
Fluorescenti	339	1632,6	€ 408,15
Tubi led	336	743,3	€ 185,83
Apparecchi Led*	356	435	€ 108,75
Tubi led/fluorescenti	-3	-55,00%	-€ 222,33
Apparecchi Led/fluorescenti	16	-73,00%	-€ 299,40
* con <u>dimmeraggio</u>	*€ 0,25euro/kWh		

Goal achieved: 73% of energy saved !!!

"When future generations judge those who came before them on environmental issues, they may come to the conclusion that they 'didn't know': let's make sure we don't go down in history as the generation that knew but didn't care."

Mikhail Sergeevich Gorbachev

Stefano Comuzzi

Professor at ISIS A. Malignani



Email: stefano.comuzzi@malignani.ud.it

Mattia Balutto

Student at Università degli Studi di Udine



Email: mattia.balutto@gmail.com

Marco Flaugnatti

Student at Università degli Studi di Trieste



Email: flaugnatti.marco@gmail.com

Thank you !

