ArduECO: real time and cheap air quality control for cities

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***Abstract*—Abstract**
***Index Terms*—Arduino, embedded, air-quality**

I. Introduction

More and more people around the world have started to understand the importance of air quality and how much having good air can influence our lives, both on the small and the large scale. A good example of this is the choice made by the government of luxemburg, that listened to the needs of its people and made the first country in the world to offer nationwide free public transport for everyone [1].
Alternatives to car for commuting have become more popular, sometimes even more than public transportation [6].
With the advent of platforms like Arduino [6] in 2007 and the more powerful Raspberry Pi [3] even the people that weren't acquainted but curious to learn have started tinkering.

example of how air quality analysis has become important over the last years, especially in countries and cities like china and india

The purpose of this paper describe project

how the paper is organized

II. Background - Problem

Background

spiegare quali sono le particelle di inquinamento nell'aria

spiegare quali sono i sensori presenti sul mercato che possono rilevarle

tabella con sensori mq e differenze

come mai la scelta di implementarlo in quel modo

III. State of the art

State of the art non solamente della letteratura ma anche di quello che viene offerto sul mercato

IV. Proposed solution

The idea is to show how this kind of devices can be portable enough to install on bikes companies like mobike could use them on their own bikes in order to gather data

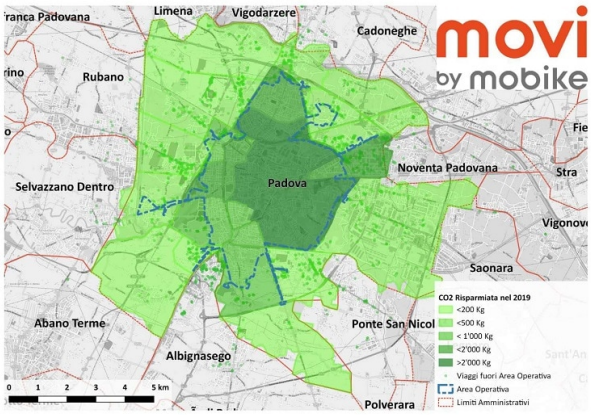

Fig. 1. Example of a figure caption. [**?**]

A. The circuit

The circuit that composes this project is made of four main components:

- *NodeMCU*: it's the hearts and brains of the device, this board is an open-source development kit based on the ESP8266 chip that allows for prototyping of IOT devices;
- *MicroSD card reader*:
- *GPS sensor*:
- *MQ sensor*:

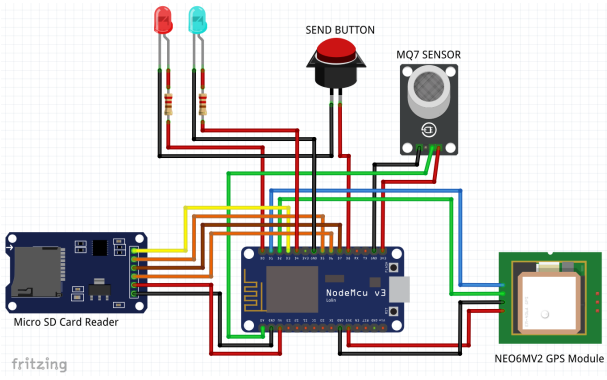

Fig. 2. Example of a figure caption.

V. The software

State of the art

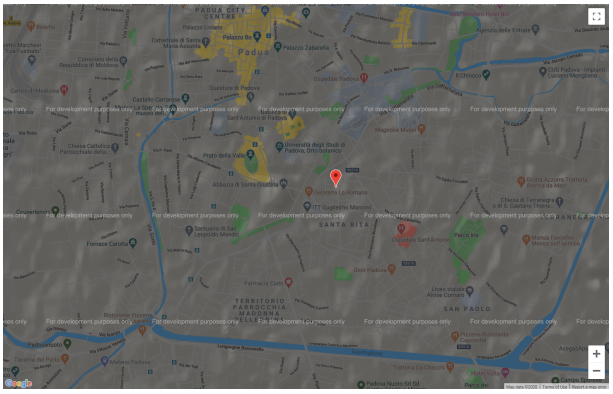

Fig. 3. Example of a figure caption.

VI. The cloud

Use of MQTT server
snippet del json che arriva al server mqtt

A. Prototype test

B. Real life implementation

State of the art

VII. Results and data analysis

State of the art

VIII. Future improvements

In this section

A. Hardware improvements

B. Software improvements

C. Cloud services improvements

IX. Conclusions and future work

This paper describes the implementation of a wireless IoT system capable to gather data from air and send it to the cloud in order to be analyzed and displayed.

Acknowledgment

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression “one of us (R. B. G.) thanks . . .”. Instead, try “R. B. G. thanks. . .”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

References

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