

## Dry Mist Automizer

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### ABSTRACT –

Air-pollution poses a significant threat to public health and the environment, necessitating innovative solutions for effective control and mitigation. This project introduces a novel approach to pollution control through the development of a "Dry Mist Automizer". This system leverages advanced misting technology to disperse a dry mist of environmentally friendly substances, capable of efficiently capturing and neutralizing fine air pollutants up-to PM2.5

Due to the rapid development in the field of Automation industry, human life becoming more advanced and better in all aspects. Internet of things plays an important role in human life as well as co-operate field and educational field because they provide accurate information and complete the given tasks while we are busy in some other work.

The implementation of the Dry Mist Automizer has the potential to significantly improve air quality, reduce the impact of pollutants on human health, and mitigate environmental degradation. By providing a proactive and automated solution, this project addresses the urgent need for innovative pollution control measures in the face of the increasing urbanization and industrialization.

**Key Words:** Mist, Automizer, light, Pollution, human health, Environment.

### 1. INTRODUCTION-

In broad strokes, the main points of this project are controlling pollution, automation, detecting dust, measuring air quality, micro-controllers. This is the combination two modern technologies, including hardware and software. In spite of the actuality of these components, they all invented long ago and have been evolving throughout history [1].

Air pollution is a pressing global concern with far-reaching indications for public health and the environment. As urbanization and industrial activities continue to rise, the need for effective pollution control

measures becomes increasingly critical. In response to this challenge, our project introduces a groundbreaking solution the "Dry Mist Automizer" – designed to take down air pollution through an innovative and automated misting technology [2].

The conventional methods of pollution control often involve complex and energy-intensive processes. The Dry Mist Automizer, on the other hand, aims to revolutionize this approach by harnessing the power of a finely dispersed dry mist to capture and neutralize fine air pollutants up to PM2.5 [3].

### WHAT IS DRY MIST AUTOMIZER?

When high pressure water is forced through tiny nozzles, the water comes out in form of droplets up-to size of 10 to 50 microns.

When the droplets come in contact with pollutants (PM10- particulate up to size 10 micron and PM2.5 particulate matter up to size 2.5 microns), they arrest further dispersion of pollutants in atmosphere.

The droplets are in the form is mist, hence named dry mist automizer [4].

### 2. LITERATURE SURVEY –

Title of Paper	Author Name	Year	Inference
A Project Report Of Dry Mist Automiser System	FLUDIO SOLUTION S, PUNE.	2023	Significantly reduce the PM2.5 to PM10 particulate matters caused by vehicles to an extent of 25% to 30%.
Performance study of spray dryer using	Ms. Arati Parihari (National Institute of	2009	Agglomeration during spray drying depends on

various salt solutions.	Technology Rourkela)		drying air temperature in the atomization zone, pump flow rate and atomization rate. Proper care should be taken in food industries for the preparation of infant food, instant food mix etc. for the moisture free and unaltered product .
The effect of automization method on morphology of spray dried particles	1.Morteza Eslamian (University of Michigan-Shanghai Jiao Tong University Joint Institute-China) 2.Nasser Ashgriz (University of Toronto)	2007	Several particle morphologies were identified including smooth-surface uniformly disrupted particle, smooth-surface disrupted particle from a single opening, non smooth-surface contracted particle, smooth-surface non disrupted particle and nonuniformly disrupted particles.
Impact of Misting Systems on Local Particulate Matter (PM) Levels	Knight, W.L., Fraser, M.P., Herckes, P.	2021	In this study, the impact of misting systems on PM concentrations was investigated during a

			controlled experiment in the backyard of a house and in four different public places. The effect of distance on PM concentration was also examined in the controlled experiment
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### 3. BLOCK DIAGRAM –

The System comprises of Atmega 328 Microcontroller, GP2Y1010AU0F Dust sensor, smoke particle, MQ 135 Air Quality, LCD Module, 12 V Water Pump, ESP8266E Wi-fi Module, Buzzer, PCB board, 12 V DC Adapter, Relay Module.

In the proposed system we designed equipment for the misting system. Atmega 328 is used as microcontroller. The LCD Module is a used for display temperature, humidity, Dust sensor. Dust sensor is used to detect fine particles up to PM 2.5 in environment. Arduino nano is used to convert dust sensor analog to digital. MQ135 Air quality sensor designed to detect a variety of gases in the air, including those that are harmful to human health.

Water Pump to Water Spray Reflux Pump in the form of mist. Buzzer is used when the air quality goes down it will sound signal. Wi-fi module is used to provide the Wi – Fi connectivity to the microcontroller. DC Adapter to convert AC to DC Supply.

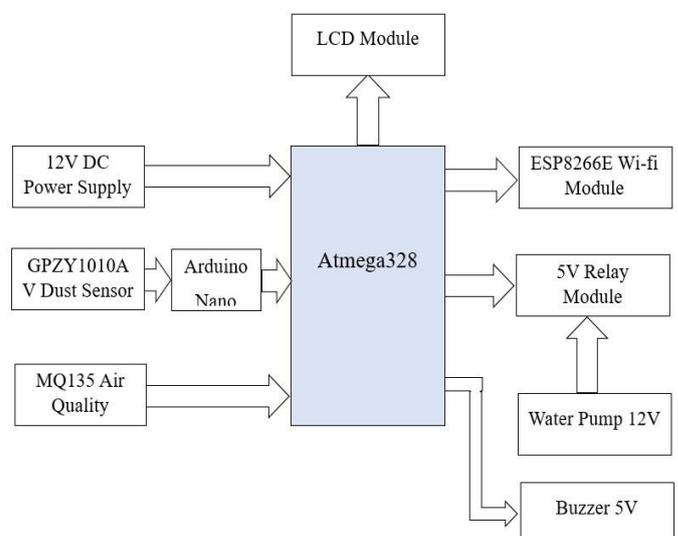


Fig 3.1: Block Diagram

#### 4. SIMULATION -

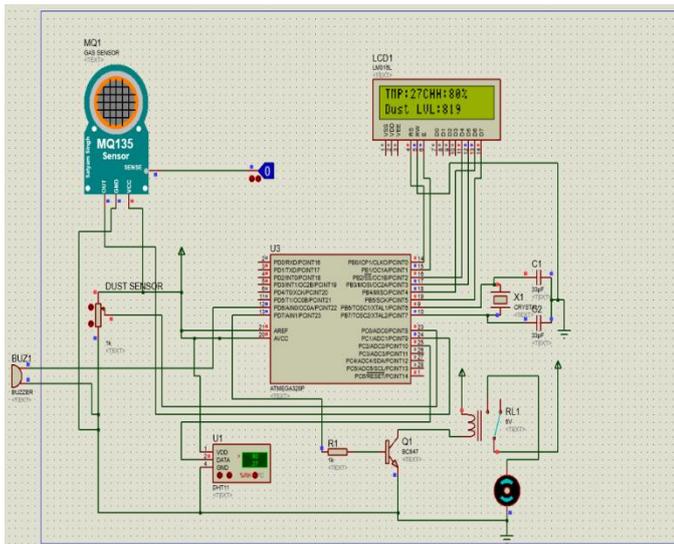


Fig 4.1: Simulation

#### 5. CONCLUSION-

Since the Dry Mist Atomizer can suppress fine and coarse particulate matters and detrimental vehicle emissions such as nitrogen oxide and sulfur oxide (SO), it reduces the chance of acid rain which contributes to accelerated weathering of the urban buildings and infrastructures and will help in pollution control.

The Dry Mist Atomizer project not only addresses current industrial challenges but also paves the way for advancements in technology that align with the evolving needs of industries seeking efficient, sustainable, and innovative solutions. Its diverse applications underscore its relevance and potential impact across sectors, making it a valuable contribution to the realm of modern industrial technologies.

#### 6. REFERENCES-

1. Fludio Solutions ‘A project report on the dry mist atomizer systems’ (2023) [www.fludio.in](http://www.fludio.in).
2. Ms. Arati Parihari (National Institute of Technology Rourkela) ‘Performance study of spray dryer using various salt solutions.’
3. Morteza Eslamian (University of Michigan-Shanghai Jiao Tong University Joint Institute- China) and Nasser Ashgriz (University of Toronto) ‘The Effect of Atomization Method on the Morphology of spray Dried Particles’(2007).
4. Knight, W.L., Fraser, M.P., Herckes, P ‘Impact of Misting Systems on Local Particulate Matter (PM) Levels’.