

**A SAFE DEVICE FOR DISINFECTING HUMAN BEINGS IN AN ENCLOSED CHAMBER USING OZONATED AIR**

**IITM Technology Available for Licensing**

**Problem Statement**

- Existing disinfection methods are **slow and uncomfortable**, reducing throughput and **discouraging use in high-density areas**.
- UV disinfection is limited by line-of-sight requirements and potential health risks**.
- Ozone's toxicity at high concentrations** raises safety concerns for **direct human exposure**.
- Controlled ozone exposure** requires precise monitoring and **regulation to ensure safety while maintaining effectiveness**.
- Disinfection processes** need to be non-intrusive, comfortable, and efficient, **protecting users while allowing rapid throughput**.

**Technology Category/ Market**

**Category** –Medical & Surgical Devices

**Applications** - Healthcare Facilities, Public Transportation Hubs, Commercial Spaces, and Educational Institutions.

**Industry** – Healthcare, Transportation, Retail, Hospitality

**Market** - Medical Devices Market size was valued at USD 62.6 billion in 2021 and is poised to grow from USD 63.4 billion in 2022 to USD 134.56 billion by 2030, growing at a **CAGR of 11.35%** in the forecast period (2023-2030).

**Intellectual Property**

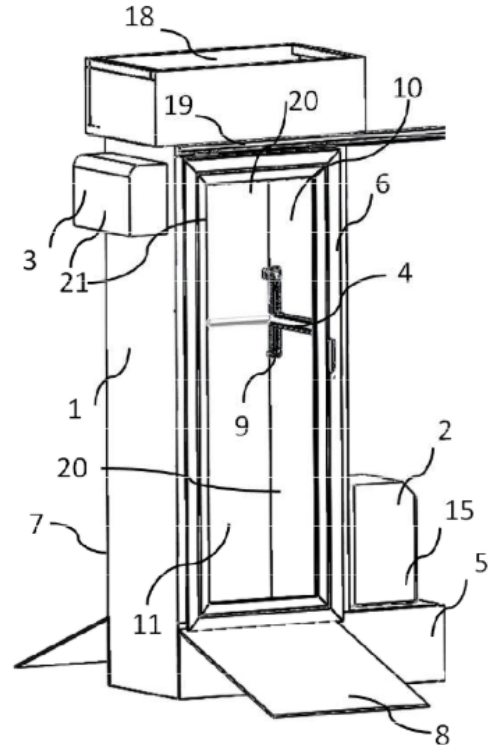
- IITM IDF Ref. 2056
- IN 534156 (Patent Granted)

**TRL (Technology Readiness Level)**

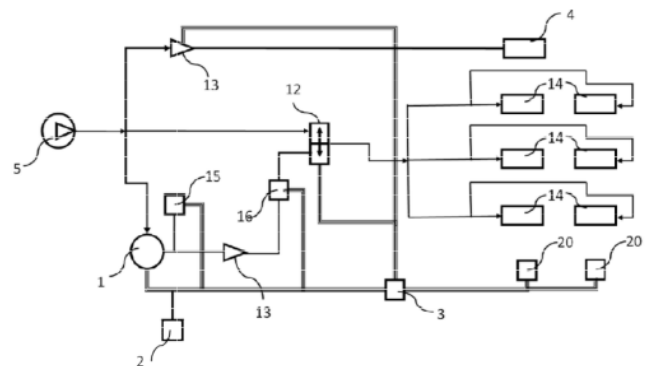
**TRL- 6**, Technology demonstrated in relevant environment

**Research Lab**

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**Figure 1: Ozone disinfection booth configuration;**



**Figure 2: Ozone generation system subassembly;**

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### Technology

#### Plasma-Based Ozonated Air Generation:

Utilizes a plasma-based system to efficiently generate ozonated air, ensuring high effectiveness in disinfection.

#### Ozone Monitoring and Regulation:

Incorporates ozone sensors and a control system to continuously monitor and adjust ozone concentration within safe levels, ensuring human safety during disinfection.

#### Air Curtain Partitioning:

Implements an air curtain assembly to create a partition within the chamber, separating the head and body compartments to prevent direct exposure of the face and head to ozone.

#### Automatic Door System with Height Sensing:

Features automatic sliding doors equipped with height sensors to detect occupants and ensure proper partitioning, enhancing user convenience and safety.

#### Efficient Ozone Decomposition:

Utilizes an ozone decomposing unit to swiftly convert ozone into oxygen before releasing it into the atmosphere, minimizing potential health risks associated with ozone exposure.

### Key Features / Value Proposition

#### Highly Effective Disinfection:

- Rapidly disinfects using ozonated air for thorough microbial inactivation.

#### Safety and Comfort:

- Ensures user safety with air curtain partitioning, height-sensing automatic doors, and preventing direct ozone exposure to the face and head.

#### Precise Ozone Control:

- Uses sensors and control systems to maintain safe ozone levels.

#### Efficient Operation:

- Features rapid purging and customizable settings for seamless disinfection processes.

#### Versatile Application:

- Suitable for high-density environments like markets, malls, hospitals, and public events.

### Image

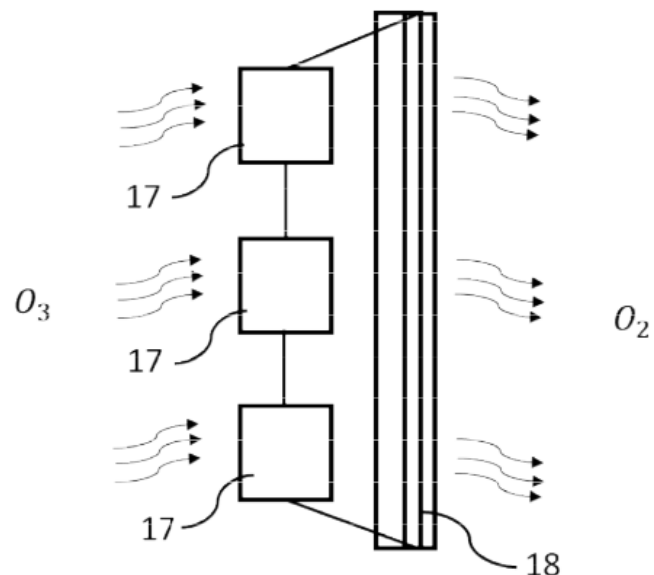


Figure 3: Ozone decomposing unit.

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