

EPICS REVIEW 2024

PROBLEM STATEMENT TITLE : *UVC-Based Face Mask
Disinfection Device with Automated Sensing and
Timed Disinfection*

TEAM NAME : **Techno Sync**

THEME : **Public Health and Safety**

Team Details

TEAM NAME: Techno Sync

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Problem Description

*The ongoing COVID-19 pandemic and environmental effects has highlighted the **critical importance of personal protective equipment (PPE)**, particularly face masks, in preventing the spread of infectious diseases.*

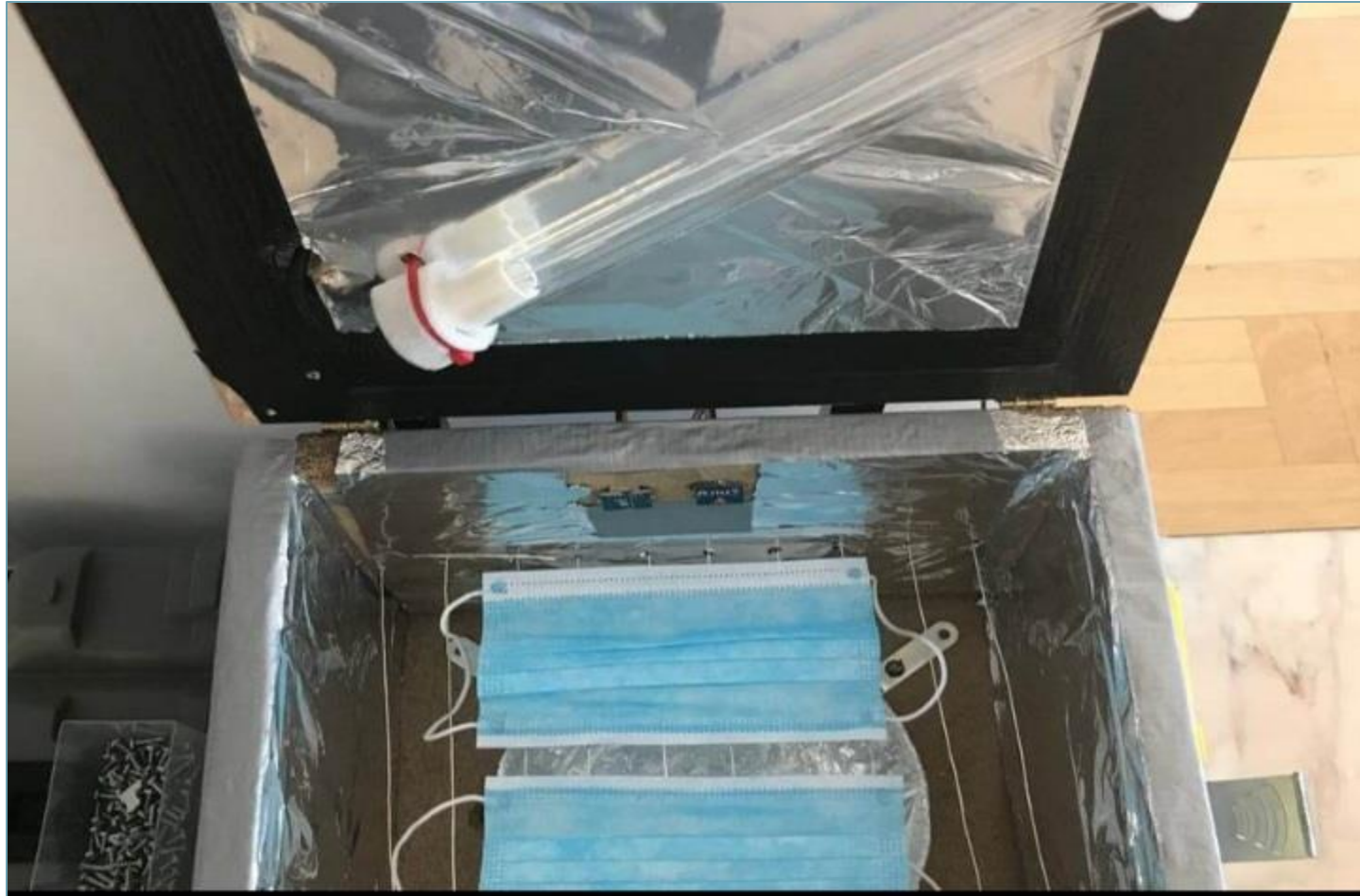
*However, the prolonged and repeated use of face masks can lead to **contamination and compromise their effectiveness**, posing a significant risk to public health.*

Your Idea

*The UVC-Based Face Mask Disinfection Device with Automated Sensing and Timed Disinfection is a **groundbreaking innovation that combines UVC technology**, automated sensors, and timed disinfection to provide efficient and safe disinfection of face masks.*

*Its automated operation streamlines the process, ensuring thorough sterilization while preserving mask integrity. By addressing material compatibility and safety concerns, this **device revolutionizes face mask hygiene**, offering a scalable and accessible solution for public health protection.*

Pictorial Representation of the Idea



Technology Stack

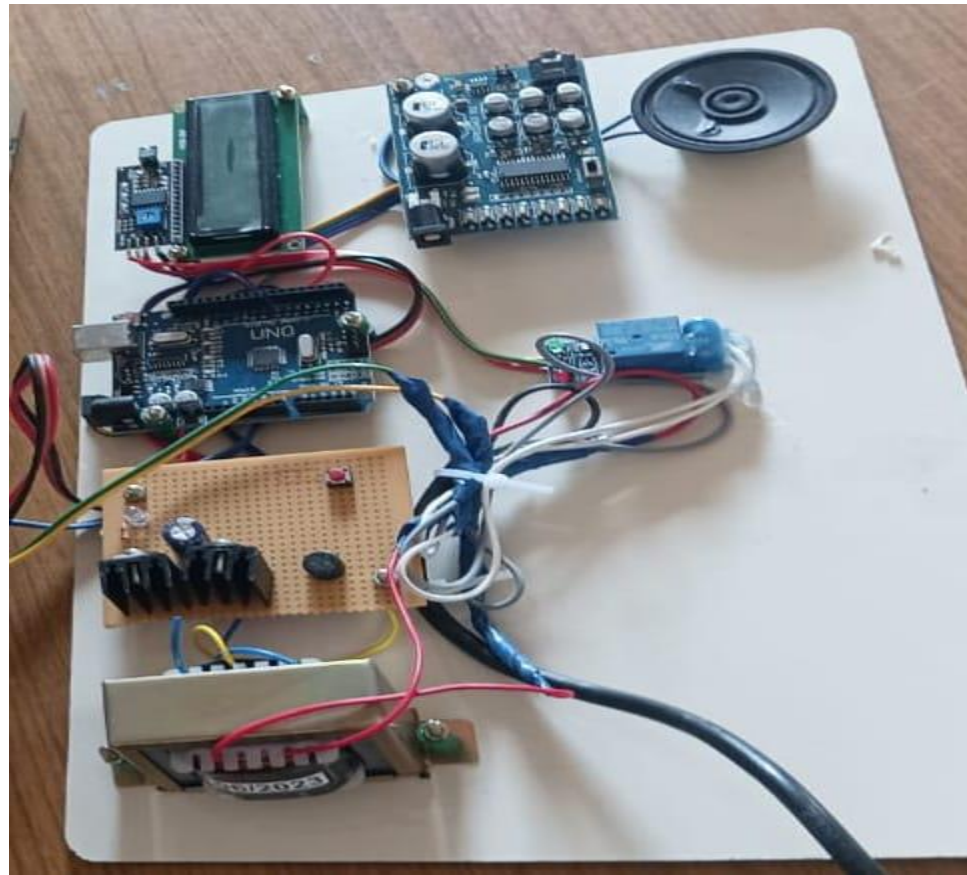
- *The latest UVC-Based Face Mask Disinfection Device integrates **advanced sensors** for real-time mask detection and contamination assessment.*
- *It employs **UV-C LED technology** for rapid and precise disinfection, ensuring thorough sterilization while preserving mask integrity.*
- *Additionally, **AI algorithms optimize** disinfection parameters, while IoT connectivity enables remote monitoring and control.*
- *With user-friendly interfaces and self-cleaning mechanisms, this device represents the **pinnacle of efficiency, effectiveness**, and safety in face mask disinfection technology*

Implementation

*Implementation of the UVC-Based Face Mask Disinfection Device involves integrating sensor modules for mask detection and contamination assessment, UV-C LED arrays for disinfection, and a microcontroller **for automated operation**. AI algorithms regulate disinfection parameters, while IoT connectivity enables remote monitoring.*

*The device features user-friendly interfaces for interaction and self-cleaning **mechanisms for maintenance**. This compact and efficient design ensures reliable and safe disinfection of face masks, suitable for various settings from healthcare facilities to public spaces.*

Demo/Output



Social Benefits

*The UVC-Based Face Mask Disinfection Device with Automated Sensing and Timed Disinfection promotes public health by **enabling safe mask reuse, conserving resources, reducing costs, and increasing access to PPE**, while also minimizing environmental impact through reduced waste generation.*

Commercial Viability

Startup Idea: *Develop and manufacture UVC-Based Face Mask Disinfection Devices for commercial sale to healthcare facilities, businesses, and individuals.*

Market Cost: *Estimated market cost for the device would vary based on features and specifications, ranging from a few hundred to a few thousand dollars per unit, depending on scale and customization.*

Service Cost: *Service costs could include maintenance plans, sensor calibration, and software updates, typically priced on a subscription or per-service basis, ensuring ongoing functionality and performance optimization for users.*

Conclusion

In conclusion,

*The UVC-Based Face Mask Disinfection Device with Automated Sensing and Timed Disinfection represents a **cutting-edge solution to the pressing need for safe and efficient face mask disinfection.** With its innovative technology, the device enhances public health, conserves resources, reduces costs, and contributes to environmental sustainability, making it a vital tool in the fight against infectious diseases.*