

Dry Handwashing Machine By Fog Disinfection To Save Water

Since the start of COVID pandemic it is been suggested to wash your hands multiple number of times per day. But can we afford to waste such huge amount of water. The problems that would be created by wastage of water would create a greater problem than the pandemic itself. To help solve this system we here design a system that provides handwashing while consuming over 95% less water.

Disinfecting our hands from time to time is a very important factor in fighting the pandemic. But does it actually require so much water to disinfect your hands. Additionally many people actually end up over washing their hands (over 15- 20 seconds with full tap released). Disinfection actually just requires that water reaches every millimeter of your hand along with a disinfectant or soap and it should be just enough to kill any infection or help it slide out of your hand. When we turn on a tap only 10 – 30% water actually touches our skin and rest just flows over this first layer of water.

Our machine goes ahead another level to enable even more water saving using a fog based system. The machine is integrated with a tank below it. The tank is filled with water along with any safe herbal disinfectant liquid if required. When the user rubs soap on his/her hands and inserts it into the system, this automatically triggers a water fogging system that converts water in the tank to fog and drives it in the handwash chamber.

Now Fog has the ability to reach all corners of the hand in less than 5 seconds as it is in gaseous state (water vapor). After 5- 15 seconds of water fog exposure the soap on users hand is washed down with the fog. This requires less than 95% of water that would be required in traditional tap based hand washing. The machine consists of a fan to drive in air that is needed to drive the fog into handwash chamber.

The handwash machine is driven by a Atmega based controller system that allows for manual settings. These settings include the time for which the machine must drive the fog for each user. Thus our proposed machine allows for handwashing for disinfection at the same time while saving lots of water.

Components

- Atmega Controller
- Fog Maker
- Water Tank
- LCD Display
- DC Fan

- Keypad
- Piping
- Supporting Frame
- Buttons & Switches
- Screws & Bolts
- Resistors
- Capacitors
- Diodes
- IC's
- Transistors
- Connectors
- PCB

Applications

- Mall & Theatre Washrooms
- Airport and Railway Washrooms
- School College Washrooms
- Office & Public Places

Advantages

- Effective Handwash
- Upto 95% Water Saving
- Easy To Use
- Automatic Operation

Disadvantages:

- Requires Maintenance
- Requires Power Supply

Block Diagram

