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Automatic PPE Kit Sanitization

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ABSTRACT: The novel coronavirus (COVID-19), declared by the World Health Organization (WHO) as a global pandemic, has brought with it changes to the general way of life. Personal protective equipment (PPE) is a current hot topic –probably the most talked about and emotive subjects for front line healthcare staff working with patients with coronavirus disease (COVID-19). PPE kits have played a key role in helping slow down the spread of covid pandemic. PPE's are used in COVID centres, Hospitals as well as for COVID testing booths. The PPE kits however get infected from the outside and need to be either disposed off or sanitized/sterilized manually after use using a lot of effort, water and chemicals. To solve this problem we hereby design a smart PPE kit sanitization mechanism by using conveyor belt. Here we make sanitizing chamber to sanitize PPE kit properly after use by doctors, patients or staff. To reduce human interaction during this process we will design conveyor belt to bring PPE kit inside chamber. Here we design system with electromechanically, means different sensor interface with controller to detect PPE kit presence, as well as start/stop conveyor rotation. This system is best solution over shortage of PPE kits

KEYWORDS: novel, conveyor belt, sterilized

I. METHODOLOGY

Personal protective equipment has become an important and emotive subject during the current corona virus (COVID-19) epidemic. COVID-19 is predominantly caused by contact or droplet transmission attributed to relatively large respiratory particles which are subject to gravitational forces and travel only approximately one meter from the patient. Personal protective equipment is an important component, but only one part, of a system protecting staff and other patients from COVID-19 crossinfection. Appropriate use significantly reduces risk of viral transmission. There are two main related problems: shortages of equipment; and inappropriate use of equipment. In this project we discuss about reuse of PPE kits. As we know after proper sanitization things get disinfect from viruses.

- I. Here we design electromechanical system for automation because our aim is reduce human interaction for this procedure. Here some sensors interface with controller to detect PPE kit present or not on conveyor. Here we design conveyor to take PPE kit inside sanitization chamber.
- II. A conveyor belt is the carrying medium of a belt conveyor system (often shortened to belt conveyor). A belt conveyor system is one of many types of conveyor systems. A belt conveyor system consists of two or more pulleys

(sometimes referred to as drums), with a closed loop of carrying medium—the conveyor belt—that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler pulley.

There are two main industrial classes of belt conveyors; Those in general material handling such as those moving boxes along inside a factory and bulk material handling such as those used to transport large volumes of resources and agricultural materials, such as grain, salt, coal, ore, sand, overburden and more. Belt conveyors are the most commonly used powered conveyors because they are the most versatile and the least expensive.

- III. To sanitizer spray we use agriculture spray pump motors, To counter the problem and find a safe yet 100% working way for human disinfection, we hereby propose a silver ion based compact disinfection tunnel. The tunnel is made compact especially to make it cheaper and take less space.

II. MODELING AND ANALYSIS

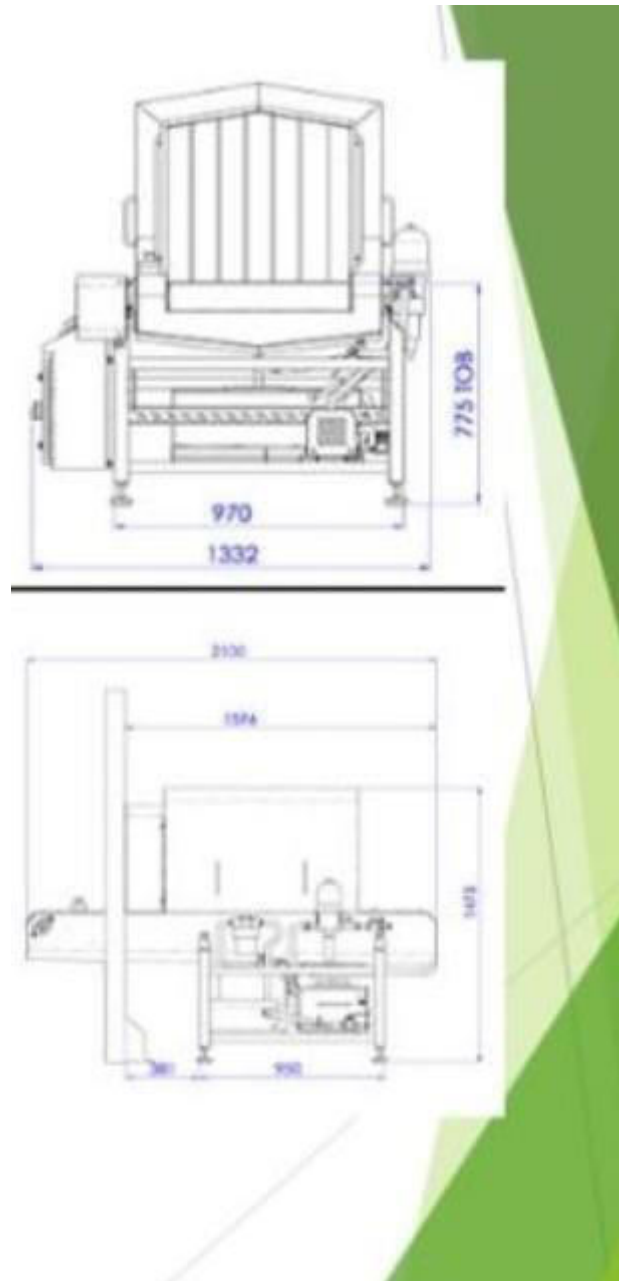


Figure 1: 3D view of building.

III. RESULTS AND DISCUSSION

Here we successfully implemented “Programmable load shedding with time management”. We make actual prototype model of this system. Here for two lines we use two different loads for prototype. According to real time clock we set ON and OFF time of both Loads. When time matched with current time loads get ON & OFF.

IV. CONCLUSION

So according to our observations real time clocks (RTC) work more accurate than other time-keeping alternatives, it allows the main system to perform important tasks, and they do not consume much power. Functionality of Electronic devices can even increase by using real-time clocks (RTC). Certain electronic devices can rely on real-time clocks when comparing the times of previous functions. If the functions have taken place within a selected period of time, device functions can be reduced drastically. Hence real time clocks interfaced with AT89S52 microcontrollers could be used extensively in load shedding time management system by utility departments. All the main points of the research work are written in this section. Ensure that abstract and conclusion should not same. Graph and tables should not use in conclusion.

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