

## Automatic Spray Pump of Hand Sanitizer Tool for Helping Aisyiah Clinic GKB

### Author

Rini Puji Astutik (Orcid ID. 0000-0003-0777-2153),  
Darmawan Aditama (Orcid ID. 0000-0003-2378-914X),  
Yoedo Ageng Surya (Orcid ID. 0000-0002-0869-8461),  
Putri Aisyiyah Rakhma Devi (Orcid ID. 0000-0001-7063-9588),  
Eko Budi Leksono (Orcid ID. 0000-0001-6687-6038)

### Correspondence

Universitas Muhammadiyah Gresik.  
astutik\_rpa@umg.ac.id, awanaditama@umg.ac.id

### Abstract:

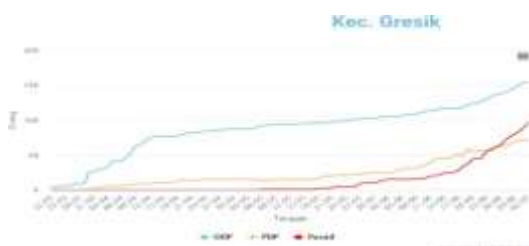
Covid-19 Pandemic is a severe problem for all countries in the entire world, including Indonesia. The government has made much effort by giving raw food to all of society who have lower income or got impact from Pandemic. The other government's actions are Large Scale Social Restriction (PSBB), using masker, washing Hands with soap. To cut the contagion chain that it has not run well this moment. This activity needs more personal protective equipment such as masker and Hand Sanitizer; both tools are essential for tackling patients in the medical sector. In the Pandemic era, these tools are minimal, and also, the price is very high, so their stock tent to the shortage. The Muhammadiyah University of Gresik, as part of the Muhammadiyah Organization, has contributed to the society around the campus. We have done one activity making an automatic spray pump of Hand Sanitizer for helping Aisyiah Clinic as Muhammadiyah Health Facility. A mechanical spray pump of Hand Sanitizer is a tool used to avoid touching the tools; just put the Hand close to the device, and then spray a little bit of Hand sanitizer. Besides, we give an Automatic Spray Pump of Hand Sanitizer; we also offer two jerry cans refilling of hand sanitizer and masker. As per the interview with the doctor who works there, they are very appreciative of this giving, and it is beneficial for this clinic.

**Keywords:** Automatic Spray Pump, Hand Sanitizer, Masker, Pandemic

Received: 07 July 2020. Accepted: 04 December 2020.

### Introduction

Gresik district is included in the area facing covid-19, and as of Juli 2<sup>nd</sup>, 2020, the covid-19 case has been described in figure 1.



**Figure 1.** Progress of Covid-19 Pandemic

From figure 1, it can be seen that the trend of Observed People soared from the end of March 2020 until Middle April 2020 thus steadily rose. As the detail for the day-by-day nominal cases, it can be seen in figure 2, which is the death cases over than the observed patient. (Satgas, 2020).



Show 10 entries

Tanggal	ODP	PSPP	Pasien UH
31/08	104	28	13
30/08	103	28	14
29/08	103	28	13
28/08	103	25	15
27/08	103	29	13
26/08	104	28	15
25/08	104	31	13
24/08	104	31	13
23/08	104	31	13
22/08	104	31	13
21/08	104	31	13
20/08	104	31	13
19/08	104	31	13
18/08	104	31	13
17/08	104	31	13
16/08	104	31	13
15/08	104	31	13
14/08	104	31	13
13/08	104	31	13
12/08	104	31	13
11/08	104	31	13
10/08	104	31	13

Figure 2. Detail Cases Day by Day

Aisyiah Clinic that located at Gresik Kota Baru is one of the clinics formed by Muhammadiyah Hospital Gresik. This clinic is long enough to establish; however, their need is still supplied by Muhammadiyah Hospital Gresik. The map of Aisyiah Clinic can be shown in figure 3. The completed address of this clinic is Java street no. 116-118, Karanggondang, Yosowilangun, Gresik District, East Java 61121.



Figure 3. Map of Aisyiah Clinic

The facilities of Aisyiah clinic are general disease, dental care, and childbirth care. There are photos of the facilities clinic, as seen in Figures 4-7. They also open 24 hours daily to serve society around them.



Figure 4. Aisyiah Clinic GKB



Figure 5. General Care Facility

In the pandemic era, Aisyiah Clinic serves many patients, so that sometimes their stock of personal protective equipment often shortage, and they have to wait for them from Muhammadiyah Hospital Gresik.



Figure 6. Waiting Room Aisyiah Clinic GKB



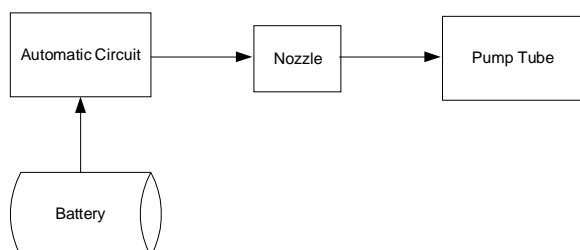


**Figure 7.** Dental Care Facility

By observing their need at this clinic; thus, we found that they need not only some maskers but also hand Sanitizer. Both tools are essential for handling the patient. We think that we need to make a tool used to fill the hand sanitizer, and it has to be touchless to avoid coronaviruses.

### Automatic Spray Pump

Automatic Spray Pump is a tool that can be filled out hand sanitizer and touchless usage. This tool contains a plastic tube as a hand sanitizer, nozzle for spraying, battery for energy source, and automatic circuit. The block diagram of this system can be shown in figure 8.



**Figure 8.** Block Diagram Automatic Spray Pump System

Battery as energy source gives power to the automatic circuit for switching on the nozzle when they sense a hand. This system needs two batteries with AA-size to operate the mechanical course. The automatic circuit

and nozzle are installed into the pump tube body so it can be efficient and portable. This pump spray can be easily moved and brought anytime and anywhere.

When the hand sanitizer liquid is finish, then it is straightforward to replace it. It just opens the cap on the top of the pump tube and fills it with hand sanitizer liquid. When the energy of the battery is finished, then open the place of hail on the bottom of the pump tube and pull out the old battery, thus change it to the new one.

The automatic spray pump of hand sanitizer as a real picture can be seen in figure 9. Besides, we provide this intuitive tool and the hand sanitizer refill; we also prepare some medical masker to fill the clinic need. This stuff is very needed by Aisyiah Clinic GKB.



**Figure 9.** Automatic Spray Pump of Hand Sanitizer

### Results and Discussion

After preparing all of the stuff for Aisyah Clinic GKB, the clinic has confirmed the date of visiting time. Our team saw them on the confirmed date while brought all of the things, including an automatic spray pump of hand sanitizer. When we arrived at the clinic, the doctor who works at that time is welcome

us.

### Explaining Working of Automatic Spray Pump

Before our team gives the personal protective equipment, we explain the work of an automatic spray pump of hand sanitizer to the medical staff of Aisyiah Clinic GKB. In Figure 10, it is shown our team when explaining the process of the mechanical system.



**Figure 10.** Our Team Explain The Work of Automatic Spray Pump of Hand Sanitizer

### Explaining Replacing Battery

The replacing battery process also has been explained to the medical staff of Aisyiah Clinic GKB, and it is shown in figure 11. They understood how the working system cause it is a simple process.



**Figure 11.** Explaining How to Replace Battery

After explaining to the medical staff, we give them personal protective equipment.

The personal protective equipment which is needed by Aisyiah clinic is 5 Boxes Masker; two jerry can Hand Sanitizer and Automatic Spray Pump tool. In figure 12, it is seen the ceremonial of donating all of the stuff to help Aisyiah Clinic face Corona Viruses 19 Pandemic.



**Figure 12.** Electrical Engineering and Informatics donate Maskers and Automatic Spray Pump of Hand Sanitizer

All of the medical staff on behalf of Aisyiah Clinic GKB thanks to our donation, which is very helpful for their need since they receive from Muhammadiyah Hospital Gresik every month. The contribution from us is more than that they received so far, and it is more than enough to fill their stock.

### Conclusion

This paper has developed the Automatic Spray Pump of Hand Sanitizer for helping Aisyiah Clinic GKB. Based on observation on the spot, we noticed that this clinic needs to help since their need for personal protective equipment depends on supplies from Muhammadiyah Hospital Gresik, and sometimes their stocks are finished.

We have made a tool for spraying hand sanitizer, which is a touch less. This tool that we called an Automatic spray pump of hand sanitizer is handy for Aisyiah Clinic GKB. They are thrilled about receiving this tool. We also donate five boxes of masker and two jerry cans of hand sanitizer refill for



their stock.

This community dedication activity was also published in two online media. The first news was published in Times Indonesia media and Investigasi Today media as one of the outcomes that our team had promised when submitting the proposal.

### References

- Satgascovid19. 2020. Kecamatan Gresik. (<https://satgascovid19.gresikkab.go.id> (2020) id/kec-gresik) Google Map. (2020).
- Cigna. 2020. Yang perlu anda ketahui tentang coronavirus (covid-19). (<https://www.cigna.co.id/health-wellness/yang-perlu-anda-ketahui-tentang-coronavirus>).

