Do it yourself automatic liquid dispenser for the COVID-19 aeon

Dear Editor,

The healthcare workers (HCWs) who are the frontline fighters during this pandemic of coronavirus disease 2019 (COVID-19) are the ones most vulnerable to get infected. The in-hospital transmission of the disease has been one of the major routes of spread and, in recent times, we have seen an increase in the number of deaths of HCWs.[1] As an HCW coming into contact with a COVID-19–positive patient is inevitable, maintaining hand hygiene (HH) is one of the key factors in preventing the spread of the disease.[2] Evidence from the literature has shown that frequent hand washing reduced the transmission risk of the virus by 55% and has the advantage of simple operation, strong sustainability, and high health benefit.[3,4] A dispenser to provide liquid soap/hand sanitizer for the same is a necessity and a noncontact dispenser would be a boon. Recently, there have been various videos on do-it-yourself automatic hand dispensers on the Internet. The components required to make a similar device are easily available on leading e-commerce websites (Amazon, Flipkart etc) as DIY automatic hand sanitizer kits. An automatic liquid dispenser was made using an old Tarsons autoclavable wash bottle which was used as a reservoir to store the liquid (soap/hand rub). The outlet nozzle of the bottle top from where the liquid was dispensed was connected to the mini submersible pump outlet using an intravenous tube (IV Tube) and the wire from the pump was pulled out through the 2-mm hole made on the bottle top. This setup was then inserted into the bottle and closed. An IR proximity sensor and a TIP32C transistor were then fixed on top of the bottle and stuck using a liquid adhesive and the circuit was completed and connected to a USB cable using a soldering gun [Fig. 1]. The bottle was filled with liquids such as hand sanitizers, liquid soaps, etc. The device was then connected to a power source. The device works when we bring our hand near the sensor which completes the circuit and then pumps the liquid in the bottle through the nozzle on the bottle top. This device's advantages are it is inexpensive, not bulky, easily transportable, and, most importantly, non-contact. This simple and innovative instrument provides a noncontact method of HH, thus reducing the spread of infection.

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Conflicts of interest

There are no conflicts of interest.

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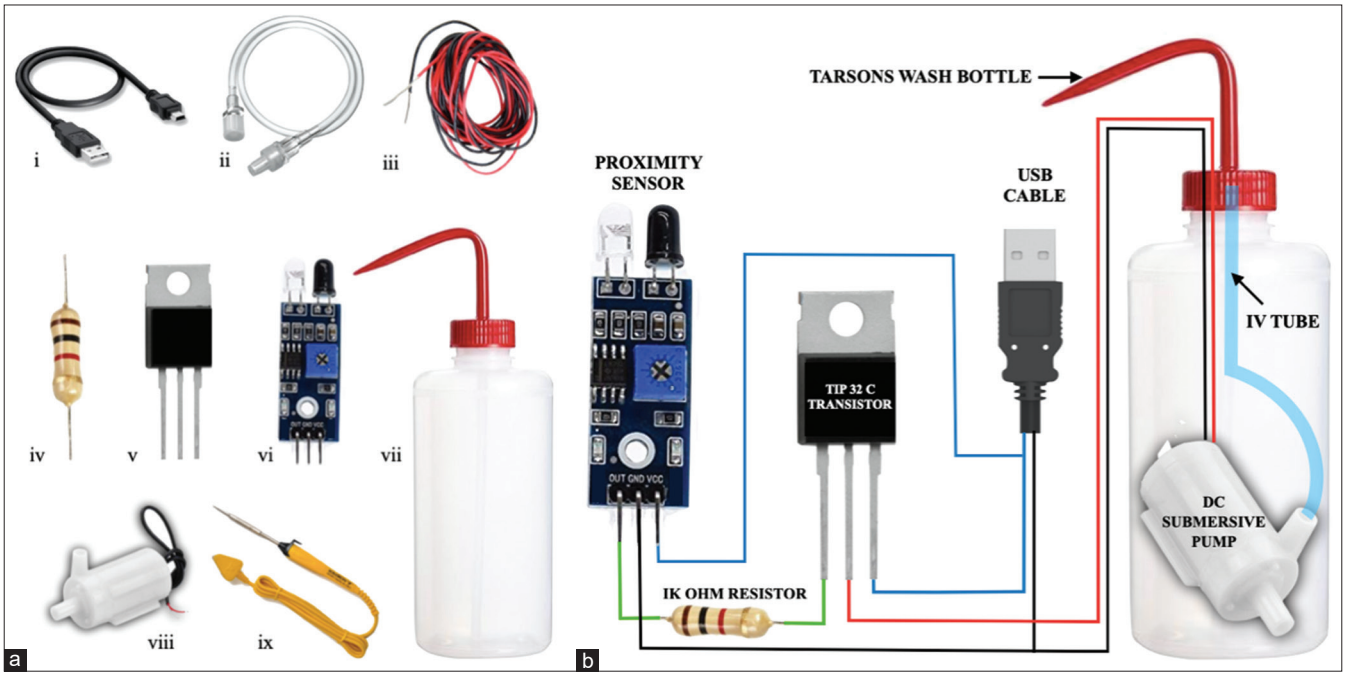

Figure 1: (a) Material used - i. USB cable ii. Intravenous Tube (IVt tube) iii. Insulated wire iv. 1k ohm resistor v. TIP32c Transistor vi. IR proximity sensor vii. Tarsons autoclavable wash bottle viii. Mini submersible pump ix. Soldering gun (b) Closed circuit of the Do-it-yourself liquid dispenser

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