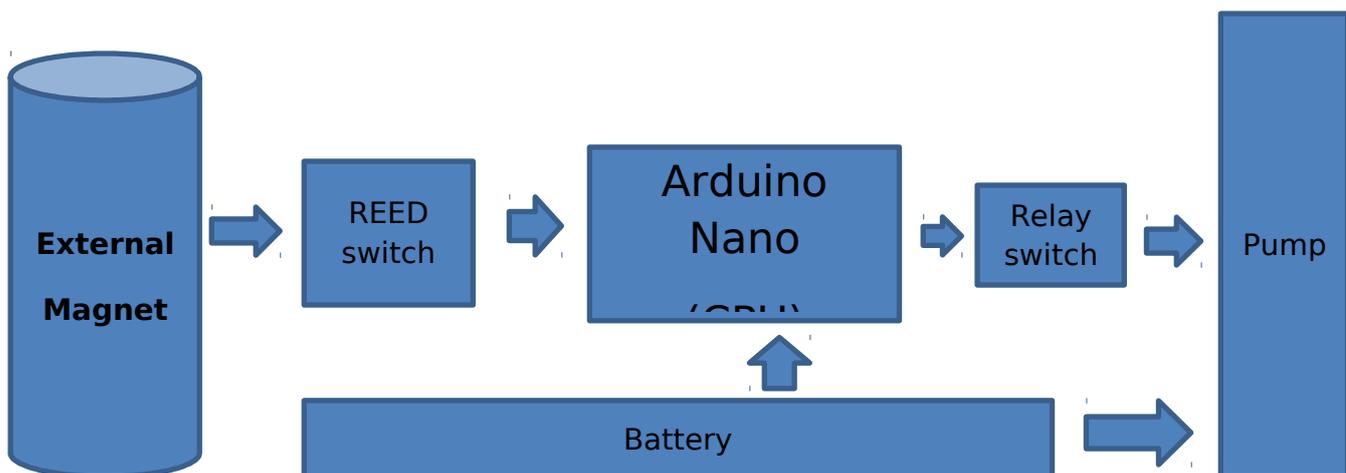


Automatic Hands-free Wearable Sanitizer Dispenser

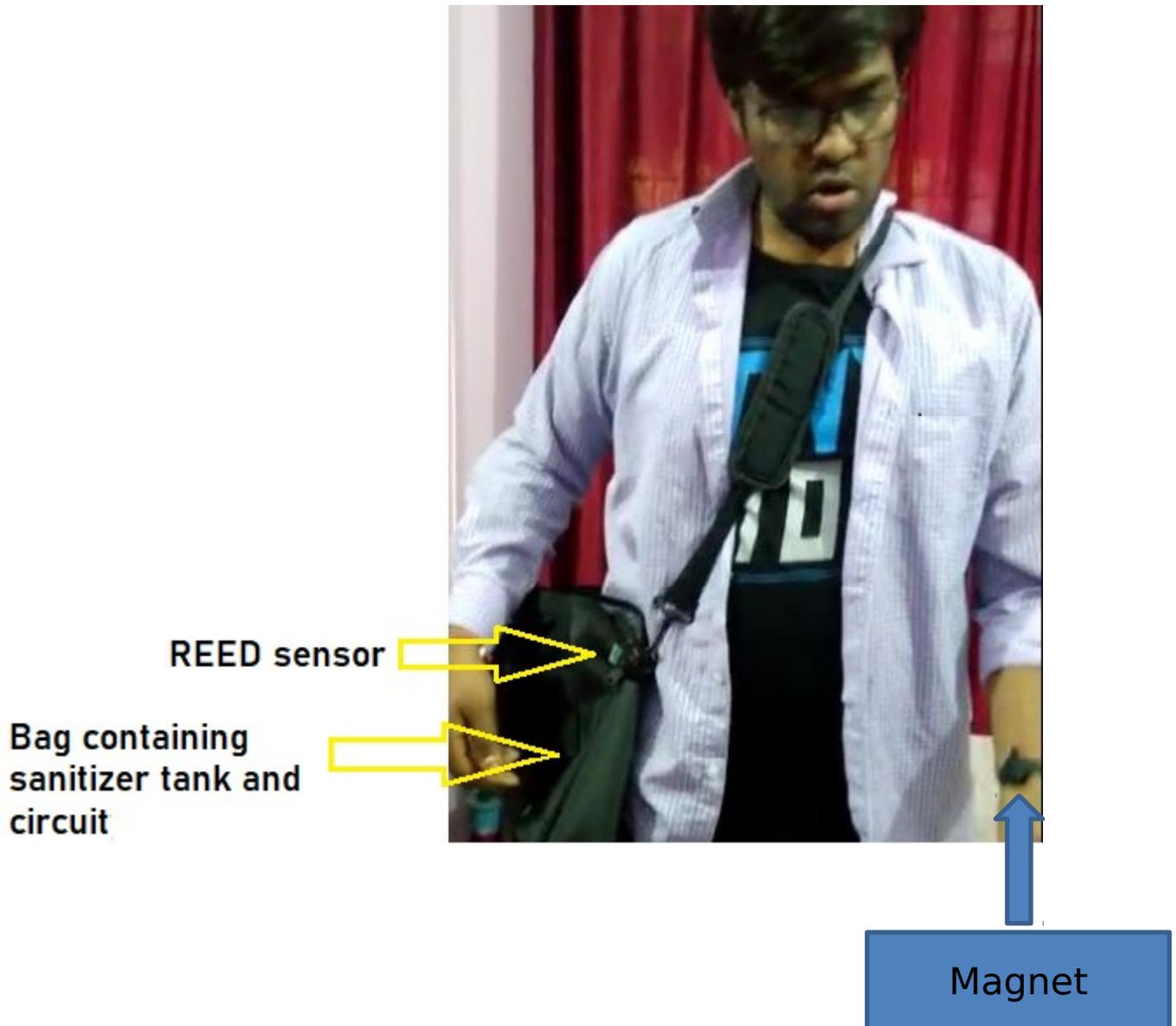
Motivation :- In the wake of COVID-19 and finding a solution for the problems arose due to it we have tried to contribute something to the society. The doctors and the other health care workers need to sanitize their hands frequently and its really important for them to do so. And it has been found to be very hectic in the current scenario to grab the sanitizer bottle ,press the knob and receiving it, or going to a big sanitizer dispenser every time. Both the cases requires multiple touching of things which can be very lethal in case of COVID-19.

Proposed solution:- To tackle this problem a portable and more specifically a wearable sanitizer dispenser has been developed. The system contains a wearable cross bag which contains the sanitizer tank and the electronic circuitry. The small conduit(pipe) goes from the tank to the palm of the user tied at different parts of the arm. The water is pumped from the tank to the palm by a small pump controller electronically which is kept inside the tank.

Working of the system:- The complete working of the system can be described by the schematic given below. The 'brain' or the controller of the circuit is the Arduino nano which has been programmed . The controller reads the data from the sensor(Reed switch) which gets activated when an external magnet comes to its close proximity. As a response the controller activates the relay which and the pump is derived for 5 seconds sufficient enough to pull the sanitizer from tank to the palm.



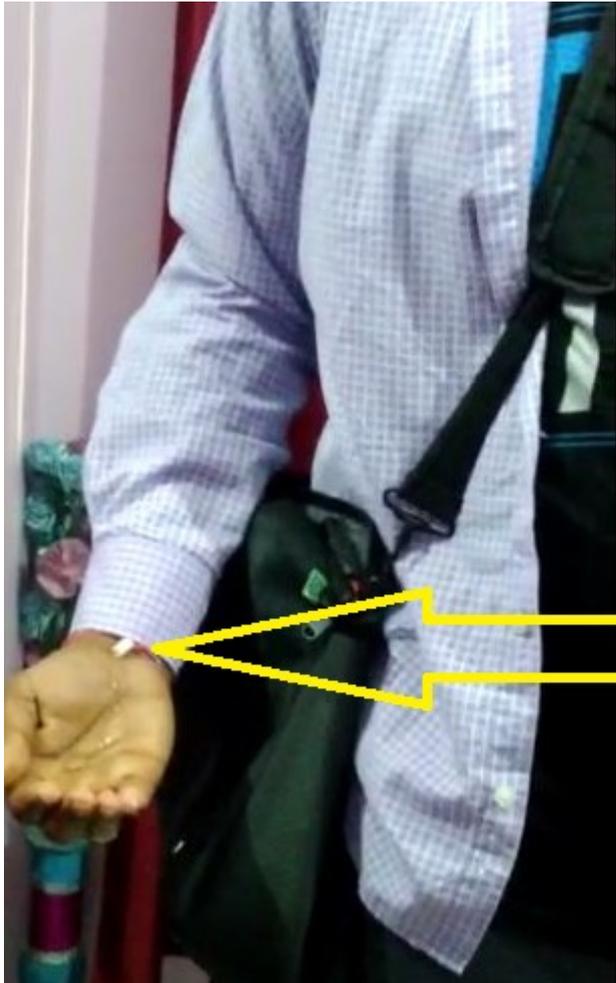
The complete setup wore by me is shown below. In the picture below the user can carry the bag wherever he/she wants and can get the sanitizer right in their hands without touching anything. The users just have to bring the magnet tied on left hand to the close proximity of the reed sensor attached on to the bag. The whole system is powered by a 12V battery. According to need of operation the capacity of the battery can be decided. This is a very low cost system and the total cost excluding the sanitizer doesn't go beyond 3000 INR.



REED sensor

Bag containing sanitizer tank and circuit

Magnet



pipe connected from
tank to palm for
dispensing sanitizer

Scope of improvement and future work:-

- Instead of bag the tank and the circuitry can be stitched to users apron or cloths.
- Instead of magnetically actuated the circuit can be made using infrared light actuated.
- Note: The system has been developed with very limited resources due to lockdown amid Covid-19. It can be surly improved using proper resources.

Developed by :

Kshitij Shakya

Ph.D. Scholar

IIT Mandi

Dr. Shubhajit Roy Chowdhury

Associate Professor

IIT Mandi

