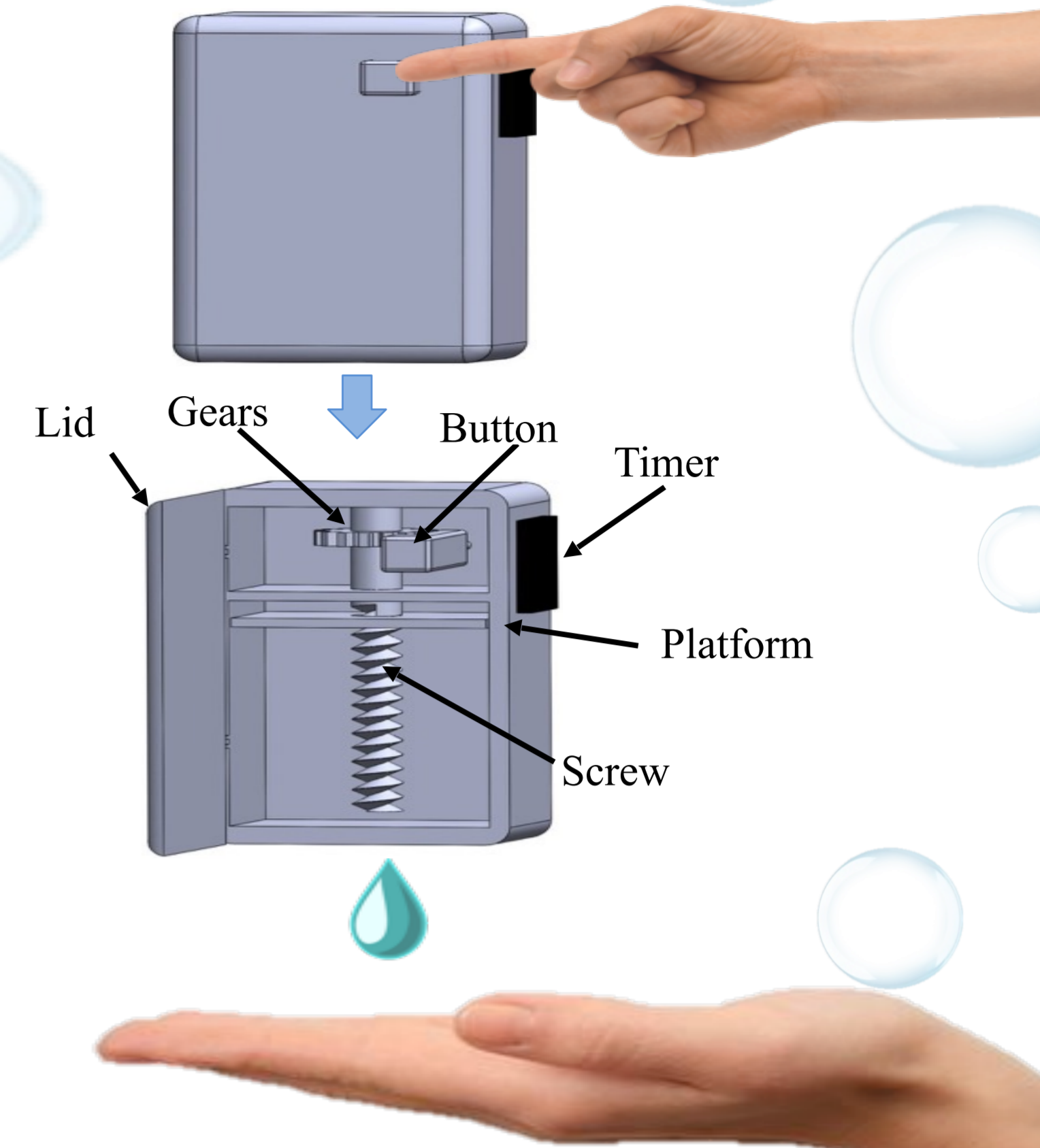


Improving Controlled Soap Distribution for OCD Patients

How Does It Work?



- Step 1** Place soap container in system
- Step 2** Client presses button, button locks
- Step 3** 30 minute timer engages
- Step 4** Gears engage, and rotate screw
- Step 5** Platform is moved down
- Step 6** Soap is dispensed
- Step 7** Button resets after 30 minutes

A resident of Hartley Life Care suffers from OCD-like symptoms^[1], manifesting as a need to wash her hands/body multiple times when using the bathroom. The over-use of soap is resulting in a number of health issues for the client, as well as an increase in responsibility for the carers involved. An engineered solution is recommended in order to limit the amount of soap dispensed per bathroom visit. The proposed solution is a device that restricts the amount and frequency at which soap is dispensed, using mechanical gears and an electronic timer.



Override System

What? A carer-controlled manual override system.

Why? In case of bathroom emergencies or an urgent need for soap arises.

How? A switch on the electronic timer that continually unlocks the push button.



Minimise Health Risks

What? Improving the health of the user.

Why? Using too much soap can result in dermatitis. ^[2]

How? Limits the amount of soap that the user can access in a period of time.



Reduce Waste

What? Reduction in the amount of soap used.

Why? Currently the excess of soap results in spillages over the sink/floor wasting soap and costing more money than necessary.

How? Stops the user being able to take excessive amounts of soap.



Independence

What? Carer's involvement in soap distribution.

Why? Requiring the carer to distribute soap each time is unnecessarily taxing on carer's time and resources.

How? Allowing individual portions to be distributed to the user without the carer needing to be present.



Adaptability

What? The difficulty of adapting a chosen design to dispense other fluids.

Why? The user currently relies on the carer to dispense toothpaste, soap, shampoo, conditioner etc.

How? SolidWorks allows for all subsystems to be modified quickly to fluids like toothpaste. Including but not limited to dispenser and storage volume, etc.



Inaccessible for a Period of Time

What? After dispensing soap, user is unable to receive soap for 30 minutes.

Why? User compulsively washes hands and will use all soap if not restricted.

How? Electronic timer that is set to release the push button every 30 minutes.

What's Next?

- Design a timer device, this will require an electrical engineer
- Conduct the 3D printing of the design
- Personal/Performance/Functional/ Maintenance testing
- Universalise application of the system (for all mental/physical disorders)
- Manufacturing funding and a manufacturing company will be required

References

- [1]U. Voderholzer, "Obsessive-Compulsive Disorders", 2005.
- [2]S. MD and D. Holness, "SCREENING FOR HAND DERMATITIS IN HEALTH CARE WORKERS", 2003.