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TECHNO

PROJECTS
ABSTRACTS
ACTS
Covid-19

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ABSTRACT HAND CLEANING



HAND CLEANER TO ADDRESS CORONA VIRUS PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID-19 pandemic, by designing local solution adapted to the environment, economic situation and social conditions of the population and administration, based on the available materials locally available and easy to find.

The local governments recommendations, based on scientists and World Health Organization being the following: reduce mobility, avoid crowded places, wear nasal masks and gloves while going out and frequent hand cleaning. These precautions taken to reduce COVID-19 diffusion and new contamination cases.

The mandatory work activities to ensure daily food, low stock and high prices of the masks and gloves lead to the possibility to just practice one of these precautions. The low availability of water and eventual lack of running tap water at public services and places, inspired us to build the apparatus below (figure 1), mobile/static and cheap hand cleaning tool for houses, public places, offices, hospitals, school, to at least allow people to easily and frequently clean the hands wherever they are.

Buffer tank size can be customized based on required capacity and specific positions. The materials used for this tool are cheap and locally found.

Valve contamination is avoided by applying actuation by feet.

The water inside the buffer tank is sterilized with local disinfectant agents with skin compatible residual remaining inside the water; to allow correct hand cleaning and even sanitation while cleaning.

Option with liquid soap, automatically supplied and optical sensor for valve actuation are available.

Fashion versions with automatic activation available for restaurant and VIP persons or places.

Small version for house usage available

Customization possible based of requirement, possible.



FOR LABORATORY AND HOSPITAL TOOLS

AUTOCLAVE AND DRY STERILIZER



AUTOClave AND DRY STERILIZER FOR LABORATORY AND HOSPITAL TOOLS TO ADDRESS COVID 19 PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID-19 pandemic, by designing local solution adapted to the environment, economic situation and social conditions of the population and administration, based on the available materials locally available and easy to find.

The mandatory work activities to ensure daily food, the reduced stock and high prices of the masks and gloves, the mandatory use of crowded public transportation, increase contact with consequent proportional growth of contamination cases.

Based on the trend (daily contamination cases, critical cases needing hospital assistance (see the trend below (Figure 1)) world while recorded, it can be estimated that in the near future hospitals in Africa will be saturated by critical cases. Since there is no biomedical industries currently operating in Africa and hospital equipment are very limited, sterilization of some equipment for second, third or multi time re-use will be necessary. Hospital facilities have few autoclaves and dry sterilizers for this scope. We have designed a local solution to address this problem.

1 - an autoclave with regulated temperature equipped with vent valves, manometer, temperature setting bottom, timer and PT100 (figure 2)

2 - a dry sterilizer equipped with a regulated thermo-sensor, HMI for parameters visualization, setting parameters, timer and alarms (fig 3)

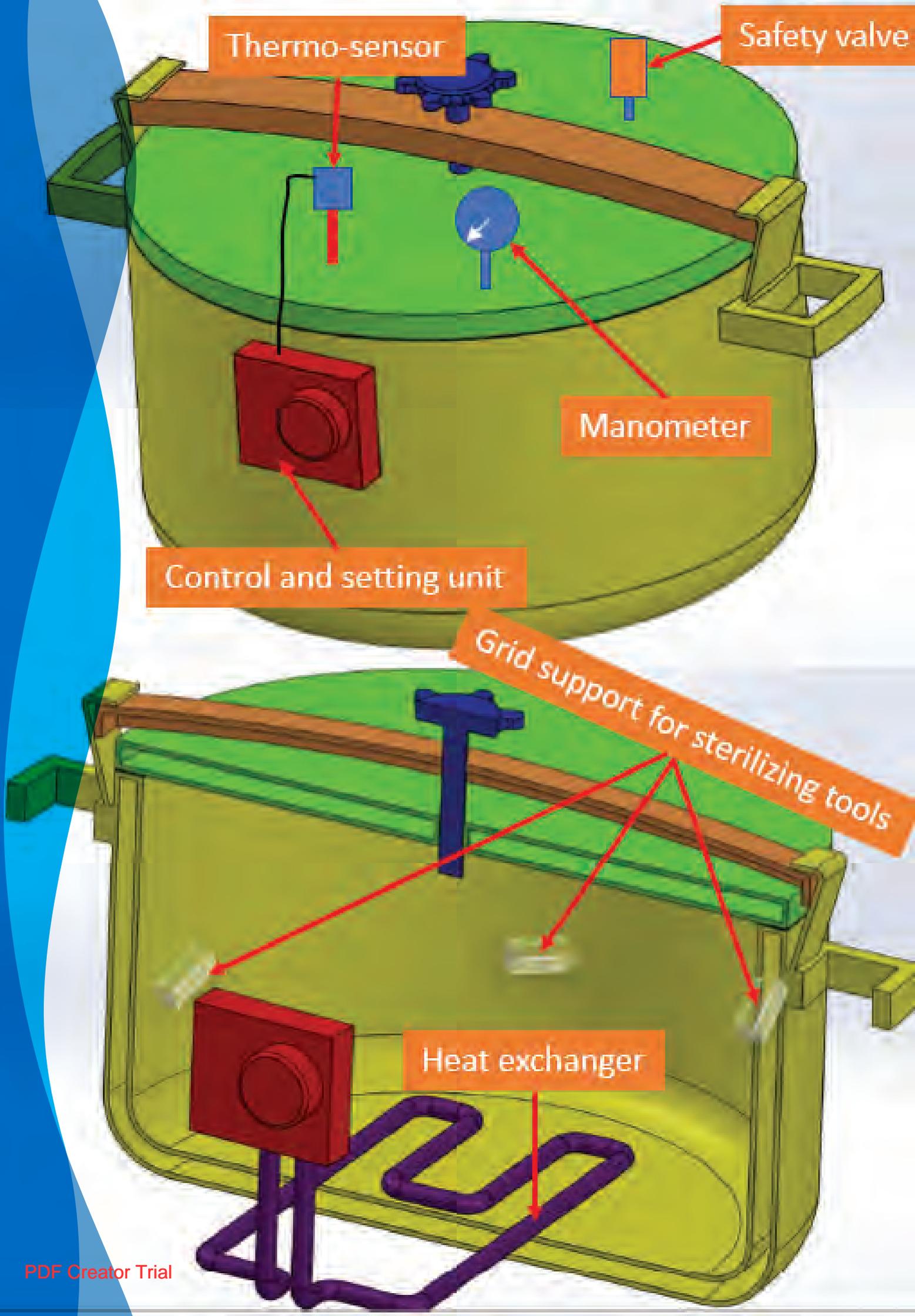
This solution will help in easier medical resources in assist people in critical conditions

<https://www.worldometers.info/coronavirus/coronavirus-cases/>

Solution is local, so available at low cost and customerisation for size, shape and functions possible.

Obvious after sale maintenance guaranteed.





Thermo-sensor

Safety valve

Manometer

Control and setting unit

Grid support for sterilizing tools

Heat exchanger

SOLAR AUTOMATIC BODY

IN PUBLIC ENTRANCES TO ADDRESS COVID 19 PANDEMIC IN AFRICA



SOLAR AUTOMATIC BODY SANITATION TOOL IN PUBLIC ENTRANCES TO ADDRESS COVID 19 PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID19 pandemic, by designing local solution adapted to the environment, economic situation and social conditions of the population and administration, based on locally available and easy to find materials

The local governments recommendations, based on scientists and World Health Organization being the following: reduce mobility, limit inter-personal contacts and frequent hand cleaning. These precautions taken to reduce COVID19 diffusion and new contamination cases.

The mandatory work activities to ensure daily food, the low stock and high prices of masks and gloves, the mandatory use of crowded public transportation, increase contact between people moving and proportionally increase the possibility to contaminate oneself and , clothes and parts of body in contact with public environment. we have thus designed a mobile solar atomizer with a large diffusion area, for external body disinfection at the entrances of public places such as hospital, schools, restaurant, offices and other closed environment.

This solution will reduce eventual microbiological load in the public environment and it will decrease eventual contaminations in these environment.

Power supply is ensured using renewable energy of 20 hours autonomy during the night time

The disinfectant solution or sanitizer used are the local level are available. Low concentrated hypochlorite solutions (<50 ppm) which have very low effect on the skin and it is germicide. Or very low concentrated chloride dioxide (< 5 ppm) produced in situ and with very fast degradation after usage.

In case of availability, hydrogen peroxide 2% to 3% can also be used as alternative. All these solutions are colorless or colorless after degradation. So, no color residual on the skin.

Buffer tank size can be customized based on required capacity and specific positions. Disinfectant solution uploaded into the system by a pump, so, the buffer tank can be easily accommodated everywhere.

The materials used for this tool are cheap and available locally.

Automatic spraying when the sensor feel persons crossing the entrance

Personal version for home can be built and customized.

Customization based of requirement is possible.

Solar Panel

Atomized solution spraying area

Entrance area

Accumulation batteri position



PULMONARY RESUSCITOR

PULMONARY RESUSCITOR TO ADDRESS CORONA VIRUS PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the limited economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID-19 pandemic, by designing local solution adapted to the environment, economic situation and social conditions of the population and administration, based on the materials locally available and easy to find.

The mandatory work activities to ensure daily food, the reduced stock and high prices of the masks and gloves, the mandatory use of crowded public transportation, increase interpersonal contact with consequent proportional rise of the contaminated cases.

Based on the trends (daily contamination cases, critical cases needing hospital assistance (see the trend (Figure 1)) world while recorded, it can be estimated that in short time, hospitals in Africa will be saturated by critical cases. Since there aren't biomedical industries currently operating in sub-Saharan Africa and hospital equipment are very limited, limited exportation by western countries of the medical equipment, high death rate will be high quite soon. We may have record number of critical cases with pulmonary collapse due to of the fact that resuscitor for breathing assistance is not readily available. Almost 100% of the critical cases which represent averagely worldwide 5% to 10 % of the total contaminated cases¹ (figure 1) will need pulmonary resuscitor for medical assistance.

To assist local sanitary administrations and services, we designed a simple and fast automatic pulmonary resuscitor (figure 2), to assist medical services for this unforeseen emergency.

The system is simple and functional

It is built locally using local available material

<https://www.worldometers.info/coronavirus/coronavirus-cases/>

It can be customized based on medical need

It will be a based to build in a close future system with more control and regulation.



PULMONARY RESUSCITATOR

Regulator connector

Mouth mask

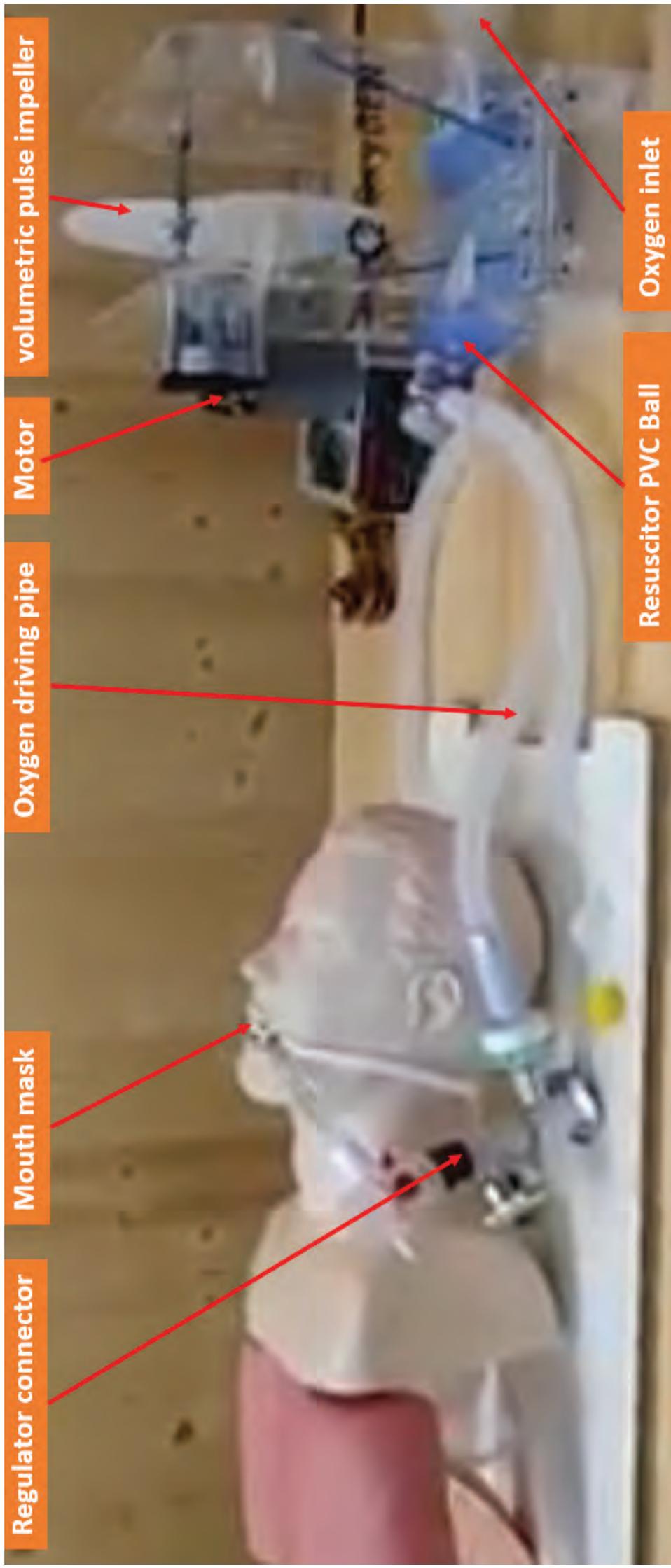
Oxygen driving pipe

Motor

volumetric pulse impeller

Resuscitor PVC Ball

Oxygen inlet



SOLAR AUTOMATIC BEVERAGES DISTRIBUTOR



SOLAR AUTOMATIC COIN AND MOBILE MONEY BEVERAGE DISTRIBUTORS TO ERADICATE COVID 19 PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID-19 pandemic, by designing local solution adapted to the environment, economic situation and social conditions of the population and administration, based on the available materials locally available and easy to find.

The local governments recommendations, based on scientists and World Health Organization being the following: reduce mobility, limit inter-personal contacts and frequent hand cleaning. These precautions taken to reduce COVID-19 diffusion and new contamination cases.

The mandatory work activities to ensure daily food, the reduced stock and high prices of the masks and gloves, the mandatory use of crowded public transportation, the daily coins exchange to buy goods, the interchange of goods between seller and buyers, the absence of flowing drinking water in public places and the necessity to cut thirst by buying water or beverages in public places, increased contact between people moving and proportionally raise the interpersonal transmission of the virus.

We thus designed a mobile solar and coins or mobile money automatic beverages distributors for public places (Places, Hospitals, offices, school etc... (figure 1)), to reduce and possibly avoid persons - beverages - persons contact which high source of virus transmission.

This product will reduce interpersonal contact, persons - goods contacts, fresh and safe beverages everywhere.

Power supply is ensured by a green renewable energy tool with 20 hours autonomy for night time

It can be placed every where and be easily filled with fresh product.

Freshly squeezed juices can be produced and easily stocked into the equipment throughout the day without hygienic issues

Three type of beverages can fit in at once . Automation for bigger machines with more beverages.

Test with local raffia and palm wine was also done with very good results

Possibility to formulate beverages with anti-oxidant for long shelf life.

Alarm product not available include

The system is designed following the good hygienic design recommendation of the FDA, EHDG

The system is automatically and easily cleaned when the need for change in product arises.

It can be connected to tap water from some houses.

Solar Panel: power supply

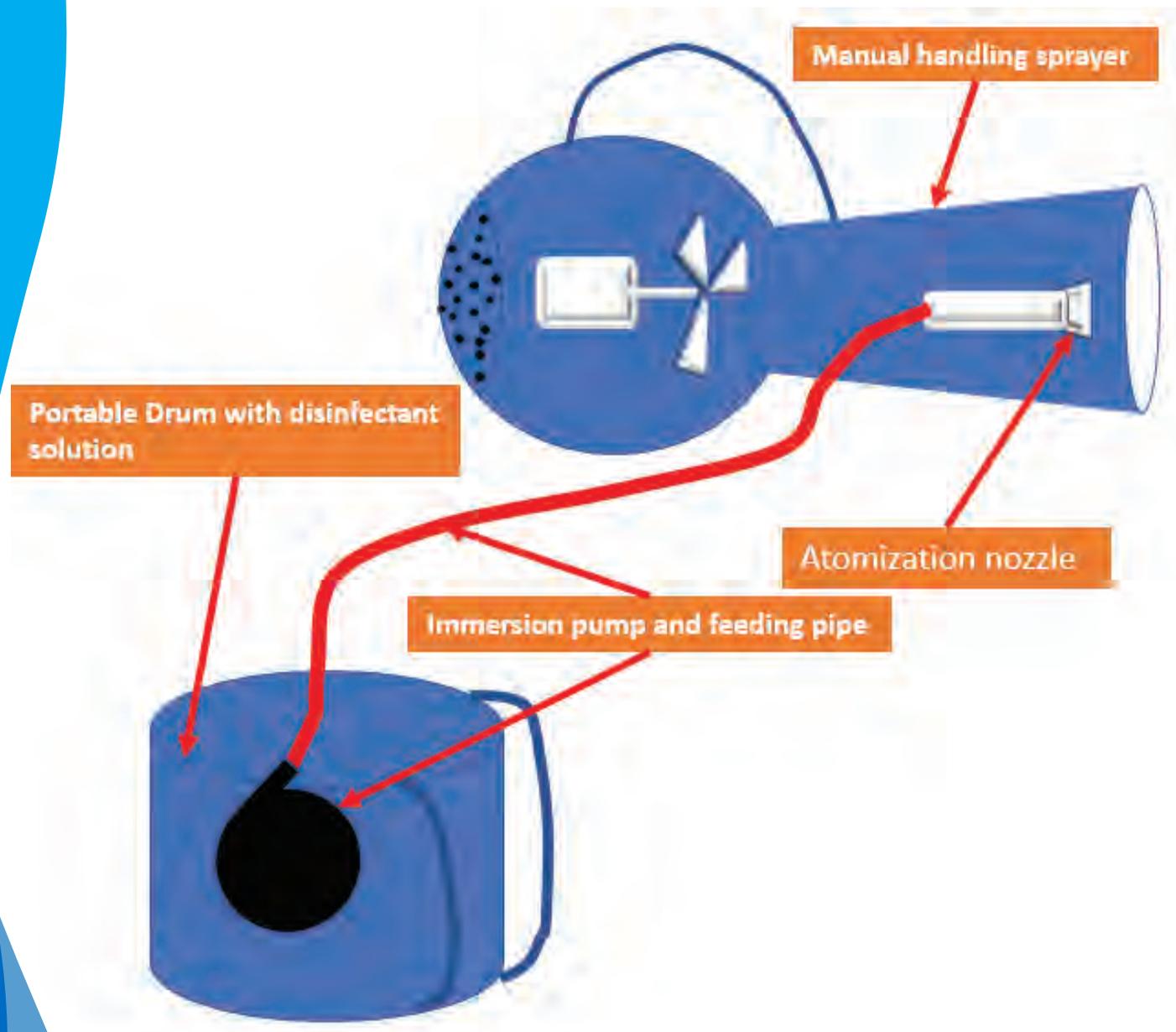
Coins payment part

Beverage selection bottoms

Beverage supply area

Box containing refrigerated container for water and beverages

INDOOR OUTDOOR MANUAL DESINFECTANT



OUTDOOR – INDOOR MANUAL DESINFECTANT TOOL TO AGGRESS COVID 19 PANDEMIC IN AFRICA

Looking at the poor hygienic and environmental conditions in Africa and looking at the economic resources of the families and administrations, a team of the engineers gathered by the AUI (Agence Universitaire Pour l'Innovation) decided to contribute in fighting the current and urgent COVID19 pandemic, by designing local solutions adapted to the environment, economic situation and social conditions of the population and administration, based on the available materials locally available and easy to find.

The local governments recommendations, based on scientists and World Health Organization recommendations being the following: reduce mobility, inter-personal contacts limitation and frequent hand cleaning. These precautions being took to reduce COVID19 diffusion and new contamination cases.

The mandatory work activities to ensure daily food, the reduce stock and high prices of the masks and gloves, the mandatory used of crown public transportation, increase the contact between people moving and proportionally raise the possibility to contaminate itself, clothes and parts of body in contact with public environment and persons close. It was thus designed a portable Manual disinfectant sprayer (figure 1) for indoor and outdoor places to allow indoor and outdoor public places disinfection such as hospital, schools, restaurant, offices, streets ecc....

This solution will reduce eventual microbiological load in the public environment and it will decrease eventual contaminations in these environment

The system can be powered by portable batteries.

The system can be customized in size and design

Bigger version drove by pickup or truck can be realized.

The disinfectant solution or sanitizer used are the local available one. Low concentrated hypochlorite solutions (<300 ppm) high Germicide effect with short contact time. Or very low concentrated chloride dioxide (< 50 ppm) produced in situ and with very fast degradation after usage. Chloride dioxide is a great solution because it is a very powerful disinfectant, it is released volatile as the gas and it can help air disinfection

In case of availability, hydrogen peroxide 2% to 3% can also be used as alternative.

The pump can be customized and not immersed.

The materials used for this tool are cheap and locally found.

