

Volume 12

JUNE 2020

Solution Inspiration  
Intelligence Creativity  
Ideas Vision



INNOVATION



### **“Essence of Innovation - The Science communiqué”**

**“There must be no barriers to freedom of inquiry. The scientist is free, and must be free to ask any question, to doubt any assertion, to seek for any evidence...”**

**-J. Robert Oppenheimer**

Dear Parent,

Even in the midst of a national lockdown, we have been relentlessly creating opportunities for our students to be lifelong achievers, progressive thinkers, scientists and responsible citizens. In this pursuit, **the school had launched the 'Scientific Query Challenge' wherein children were encouraged to design innovative solutions to problems they see around them.**

Students at this institution have always been brimming with the spirit of inventiveness and innovation. They have inspired us with their remarkable intellect and unique vision, bringing in innumerable laurels for the school **The best of these glorious pearls have been published in "The Essence of innovation –The Science Newsletter”.**

My heartiest congratulations go to my budding scientists who have showcased their intellectual acumen and given us reason to applaud and celebrate their achievements. I hope the zest and ardour for noble scientific pursuits will exceed the realm of our expectations in the future as well.

**(Suruchi Gandhi)**

Principal

**E<sup>2</sup>C=I**

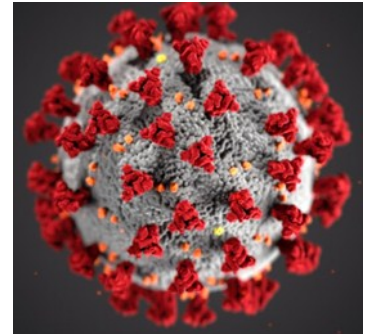
**SUCCESS MANTRA FOR OUR BUDDING SCIENTIST**  
**Empowerment, Engagement and Creativity = Innovation**

# CREATIVITY AND INGENUITY OF OUR EINSTEINS....

## CORABAND

### PROBLEM:

During covid-19 pandemic, people are liable to take precautions like **practicing social distancing, refraining from touching their face, avoiding mass gatherings** and much more. However, the virus can travel from other sources viz. **touching of door knobs, exchange of currency etc.**



### MY IDEA:

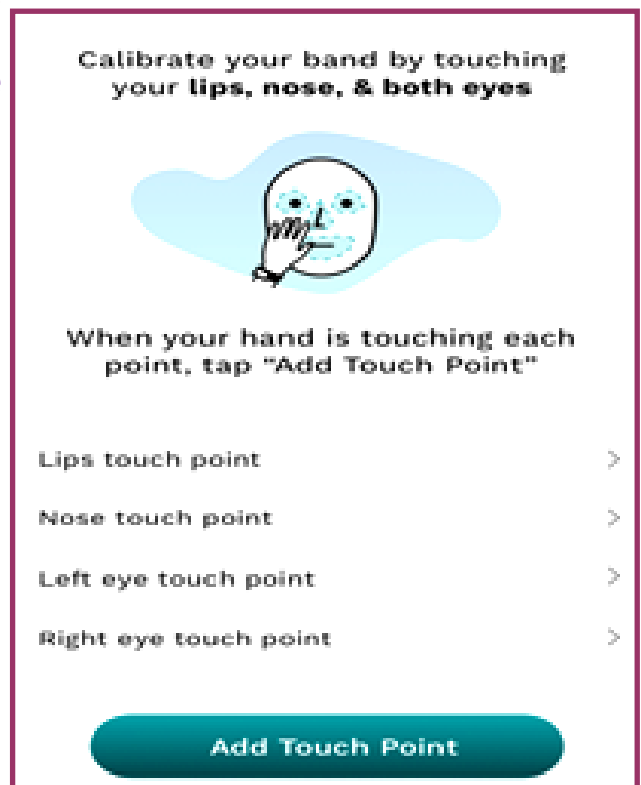
This smart wrist band (**Coraband**) would **prevent us from placing our hands on our eyes, nose and lips**. It will also help us maintain social distancing.

### METHODOLOGY:

**CORABAND** will be synchronized with an app especially designed for this purpose. This band can store the data just like other smart devices. **The device will undergo calibration of eyes, nose and lips**. The data would be read according to the distance of the hands from the touch point. **So, whenever we are about to touch these points, the band would start vibrating at a distance of 5-10 cm and prevent us from touching these points.**



AVIRAL GARG (X-B)



**“Every great advance in science has issued from a new audacity of the imagination”.**

# SAFETY OF ANIMALS

## **PROBLEM:**

Accidents on highways may lead to grave injuries and deaths too. A number of highways pass through fields and areas of sparse population. Often animals come in the way of cars leading to accidents.

## **MOTIVE:**

To prevent accidents caused by hitting stray animals, resulting in injury to both human beings and animals.



## **IDEA:**

- The idea is to create “**PREVENTIVE PILLARS**” at roadside amidst insecure areas.

- These smart pillars could be **installed with sensors**, which would detect the animals in the vicinity through visual and motion sensing.

- Light and sound can be used by the pillars to avert animals.**

- During night, the pillar may project bright light towards the animal, so that the animal runs away.**

- Alternatively, **they can use sound to send away animals.** The pillars may emit ultrasonic or infrasonic waves, loud enough for a particular animal and it may run away due to annoyance.

- The best part about this method is that **ultrasonic and infrasonic waves are not audible to humans!**

- It will save lives of human beings as well as those of animals!**



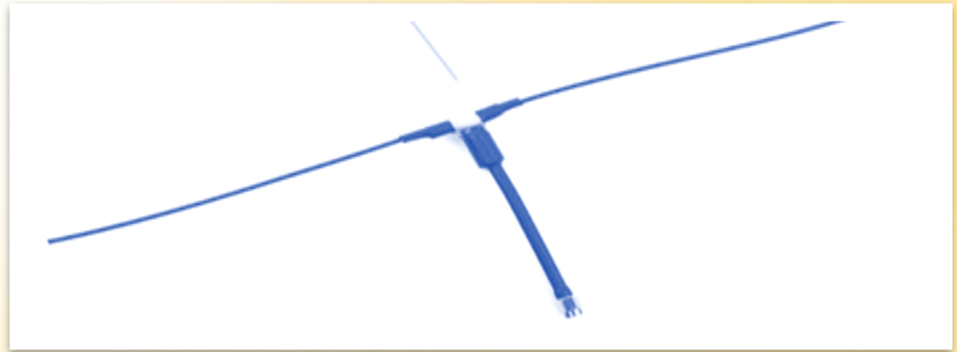
**BHARAT LUTHRA (X-C)**

**“COMING UP WITH SOMETHING NO ONE HAS THOUGHT OF, THINKING DIFFERENTLY, THAT, IS TRUE MAGIC.”**

## CHARGED ANTENNA



DRISHYA GARG (X-C)



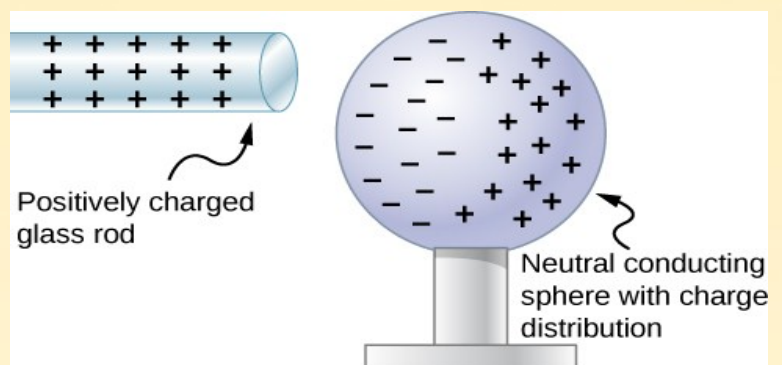
### PROBLEM STATEMENT

Most of the countries and in particular India, face a perpetual problem of smog and air pollution during winters. In winters, the water vapours are condensed near the surface of the earth due to low temperature of atmosphere. **These water vapours get condensed on smoke and dust particles, making it difficult for people to see, causing serious accidents.** This also deteriorates the AQI (air quality index), affecting asthmatic and COPD patients, along with children.

### PROPOSED SOLUTION

- \* Dipole antennas, if installed on all cars, buses, factories and roofs of houses can be a solution to this problem.
- \* The pointed pole can be made to act as a capacitor for this purpose. **Capacitors store energy by holding apart pairs of opposite charges.** Since opposite charges attract each other and naturally want to come together when they are held a fixed distance apart, air is transformed into an insulating material between the opposite charges. Their mutual attraction stores potential energy that is released if they are re-united.
- \* The simplest design can be a **POINTED ANTENNA** with **2 metal plates** with a gap between them.

- \* There is a negative plate and a positive plate having same amount of charge.  
(INDUCTION CHARGING)



- \* Dust particles can be removed by earthing (transferring charge to earth) the antenna to the ground and dust will fall on ground due to gravity.
- It is a low cost and feasible solution to control air pollution .

**"THE PATH FROM PROBLEM TO SOLUTION INEVITABLY CROSSES THE VILLAGE OF CURIOSITY"**

## AVISAKTA- A WOMEN SAFETY DEVICE

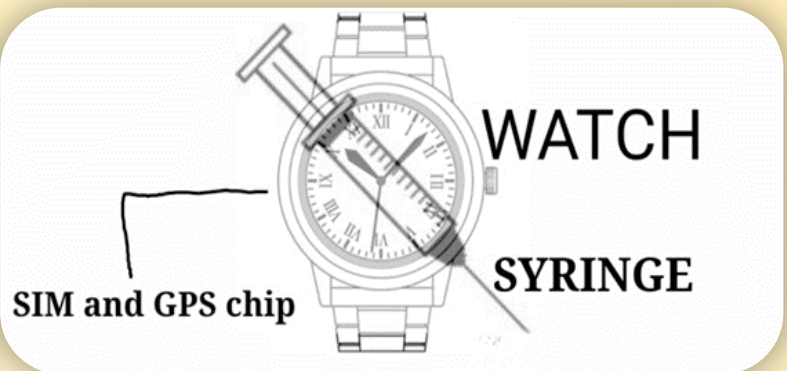


### PROBLEM STATEMENT:

Safety of women matters a lot whether at home, outside the home or at work place. Some of the most common crimes against women are rape, sexual harassment at home or work place, kidnapping and abduction, assault and sex trafficking.

### AIM:

To make a watch for women to protect them from criminals.



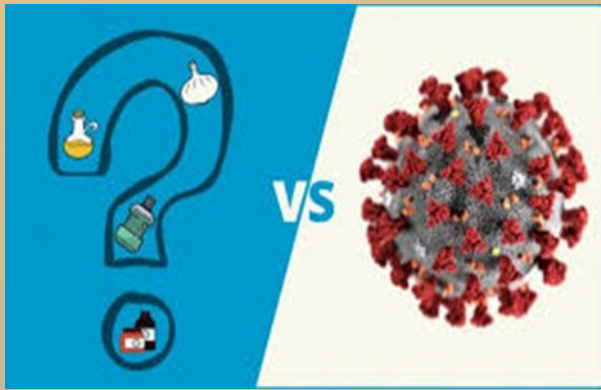
- This watch will have a defence mechanism and will contain a syringe with DESFLURANE (inhalation agent for induction of anesthesia) combined with nitrous oxide so women can defend themselves until help comes.
- To get help, the watch will be constituted with a button, connected to a GPS chip and a sim. Whenever the button is triggered, a call to the nearest police station, with the location through the GPS chip, would automatically be made.
- A little spy camera can also be installed in the watch. It would record everything and can therefore be used to identify the criminal.



**AADI SRIVASTAV  
(X B)**

**“CURIOSITY IS THE WICK OF THE CANDLE CALLED LEARNING AND IF  
THE FLAME CAN LIGHT UP THE WORLD JUST A LITTLE,  
SOLVE THE TINIEST OF PROBLEMS,  
THAT FLAME IS THE BRIGHTEST”**

# “KNOWING YOUR ENEMY IS THE FIRST STEP TO VICTORY”



## MYTHS ABOUT CORONA VIRUS

**Myth: Virus does not survive the warm weather or the sun**

**Fact: From the evidence collected so far, the covid-19 virus can be transmitted in all areas, including areas with hot and humid weather.**



**Myth: Holding breath for 10 seconds acts as a test for new covid-19**

**Fact: You cannot confirm it with breathing exercise. The most common symptoms of covid-19 are dry cough, tiredness and fever. Some people may develop more severe forms of the disease, such as pneumonia. The best way to confirm if you have the virus producing covid-19 disease is with a laboratory test.**



**Myth : Non- vegetarian food (meat) consumption can lead to Infection**

**Fact: No known animal species has been known to carry this virus as of yet and we can eat non-vegetarian meals as long as they are prepared with utmost care for hygiene.**



**Myth : Regularly rinsing with saline helps prevent infection with the new coronavirus**

**Fact: No, there is no evidence that regularly rinsing with saline has protected people from infection with the new coronavirus. There is some limited evidence that regularly rinsing nose with saline can help people recover more quickly from common cold.**



**Myth : Taking a hot bath may prevent the new corona virus disease.**

**Fact: Taking a hot bath will not prevent you from catching covid-19. Your normal body temperature remains around 36.5°C to 37° C, regardless of the temperature of your bath or shower. Actually, taking a hot bath with extremely hot water can be harmful, as it can burn you.**



**Myth :** Vaccines against pneumonia can protect a person against the new corona virus.

**Fact:** No. Vaccines against pneumonia, such as pneumococcal vaccine and haemophilus influenza type B (hib) vaccine, do not provide protection against the new coronavirus.

**Myth:** 5G mobile networks spread covid-19

**Fact:** Viruses cannot travel on radio waves/mobile networks. Covid-19 is spreading in many countries that do not have 5G mobile networks. Covid-19 is spread through respiratory droplets when an infected person coughs, sneezes or speaks. People can also be infected by touching a contaminated surface and then touching their eyes, mouth or nose.



# COVID-19 Prevention Tips



## WASH

Wash your hands frequently – for at least 20 seconds



## COVER

Use tissues when you cough or sneeze and dispose of them immediately, use your elbow if a tissue not available



## AVOID

Do not touch surfaces and then your mouth, eyes or nose



## DISTANCE

Practice social distancing by not shaking hands, hugging, etc.



## ISOLATE

Stay home if you become ill and prevent the spread of the illness



Harshita (XIIA)

**Nothing is of greater importance than the conservation of human life."....**

**Follow 4 B's-  
Be aware, Be healthy,  
Be Safe and Be at Home...**

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