

ISSUE NO: 3

OCTOBER 2019



# MAGAZINE



A **MONTHLY** MAGAZINE  
BY THE **STUDENTS**

On  
AWARENESS



COVERPAGE DESIGNED BY: VIII F  
KHALID, EHAAN, AND MITHILESH



## EDITORIAL NOTE:

 **DEAR**  
 **READERS,**

We cannot become what we want by  
remaining what we are...

~ Max de Pree

Welcome dear readers!

Our theme for the October issue deals with the dark reality of society – social issues and its nemesis- Social Awareness. Social awareness does not have a simple dictionary meaning although many may rightfully interpret it to be a model whereby one has fundamental knowledge about social issues including political issues, economical issues, technological issues... etc. Surely one can't know about all these details, so why bother? It's because awareness is knowledge and knowledge is power. This means that creating awareness is directly related to empowering people.



## EDITORIAL NOTE:

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 **READERS,**

In fact, in this issue various students have tried to empower the readers by discussing, debating and putting forward their ideas and thoughts. Students discuss about issues such as- Pollution – its causes, effects and what can we, as children of this planet, do to prevent it; Cancer- (one of the world's fastest yet incurable disease) the ways that are used to treat it, its symptoms and about maintaining a healthy lifestyle; Acid attacks, its survivors, their inspirational stories and many more. This issue also deals with the way our students have tried to achieve technological advancement and their contribution towards society.



## EDITORIAL NOTE:

**D**EAR  
**R**EADERS,



In short, it's a tiny effort to bring together and discuss as many diverse issues as possible. So sit back, relax, enjoy the magazine and try to discuss these ideas whilst spreading your own to empower not just yourself but also the society and don't forget to think about ways you can contribute (and act on them)! It is our hope that this issue will allow you to make meaningful connections with the society, its issues and their solutions while challenging, facing and confronting them all the same.

**SANGRILA OJHA**  
**CLASS: XI B**



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## Awareness on Cancer

Now a days cancer is a major public health problem both in our country and worldwide because of its disease burden, fatality and tendency towards increased incidence. It is a broad term, it occurs when cellular changes cause the uncontrolled growth and division of cells. Some types of cancer cause rapid cell growth, while others cause cells to grow and divide at a slower rate.

Certain forms of cancer result in invisible growths called tumors. Cancer affects the vital organs of our body like kidney, liver, heart and brain. There are various types of cancer. The most common type of



cancer is cervical cancer. In cervical cancer, cervical part of the spinal cord is affected due to which severe pain in spine is found. In women, the uterine cancer is common.

The main causes of Cancer are as follows:

- Excessive body weight
- Poor nutrition
- Lack of physical activity
- Heavy alcohol/tobacco consumption



According to the National Cancer Institute, there are over 100 types of cancer. Cancer is associated with pain, fatigue (general weakness), difficulty in breathing, diarrhea, constipation, vomiting tendency, weight loss, brain and nervous system problem.

There is no certain way to prevent cancer but there are several ways of reducing the cancer such as:

- Stop smoking
- Avoid excessive sun exposure
- Exercise most days of the week
- Eat a healthy diet
- Maintain the body weight
- Alcohol drink should be avoided

These points above are regulated by us but some approaches that can prevent cancer are:

1. Chemotherapy aims to kill cancerous cells with medications that target rapidly dividing cells.
2. Hormone therapy involves taking medications that change how certain hormones work or interfere with the body's ability to produce them.
3. Immunotherapy uses medications and other treatments to boost the immune system and encourage it to fight cancerous cells.
4. Precision medicine or personalized medicine is a newer, developing approach. It involves using genetic testing to determine the best treatments for a person's particular presentation of cancer.
5. Radiation therapy uses high dose radiation to kill cancerous cells.
6. Stem cell transplant can be especially beneficial for people with blood related cancers. It involves removing cells such as red or white blood cells that chemotherapy or radiation therapy has destroyed.
7. Surgery is often a part of treatment plan when a person has a cancerous tumor.
8. Targeted therapies perform functions with cancerous cells to prevent them from multiplying. They can also boost the immune system.

## **ACID ATTACK SURVIVOR- RESHMA AGARWAL**

“He changed my face; not my heart,  
he threw acid on my face; not my dreams”-  
Reshma Agrawal

On 19th May, 2014, a 17 years Old Reshma Quershi left home for the examination center. Every thing happened in a flash. Three men rushed towards her, grabbed her tugged at her hair and poured concentrated acid on her face. Acid is a corrosive substance, that can burn even through metal and, Reshma was only made of flesh and bones. She started to burn like a living corpse. The acid burnt through her skin and aimed for her bones, but it could not quell the raging fire in her heart.

Today, she is that acid attack survivor who took the world by storm by walking in the New York Fashion Week.

Be Aware of Acid.....



## A Chemical Free Diwali

Did you know that certain chemicals such as Potassium nitrate, charcoal and Sulphur can emit harmful gasses such as Sulphur dioxide, Carbon dioxide, Carbon monoxide and some metallic compounds which can harm our environment?

Now you might be wondering “Ok! So now we know about chemicals and what they emit. Get on to the part where Diwali comes in!” Well, all this is related to the fire crackers you and I both burst during Diwali. Yes, yes! The same ones we would want to burst again and again. The pollution they create might seem irrelevant when compared to the amount of factory smoke and car fumes that are already produced. Well, why don't I give you a reality check? Let us see what these so called excitement generating crackers are made of and what they are capable of. They are primarily made of dangerous chemicals namely Sulphur dioxide (cause of breathing problems), cadmium and lead (that can damage kidney and nervous system), magnesium (metal fume fever), nitrate (mental illness), copper (affects the respiratory system). Wow! More than you expected, right? Well then, it's time to wake up and smell the coffee because there's more. Almost 42% of pollution is produced by the chemicals in fire crackers every year. The gases produced due to the chemicals in fire crackers contribute largely to the increase in global warmings speed. They drastically increase pollution. Besides, the residue of the chemicals can pollute the soil which may poison the plants which grow in the soil of that area. When animals eat these, they may get severe illnesses. The fumes from the fire crackers can cause respiratory problems in various animals and birds. The fumes don't just cause respiratory problems in animals and birds, but also cause chronic or allergic bronchitis, bronchial asthma, sinusitis, pneumonia and so on, in humans. If the use of fire crackers does not subside, then the amount of pollution will start to increase dramatically as well. This could cause extinction of a large number of species of birds and animals. It might be hard to just suddenly stop bursting fire crackers on Diwali. Well, you don't have to. Instead, find more environment friendly alternatives instead of using actual fire crackers. Remember the paper prank many of us used to play on each other? We could use that trick as a cracker since it makes the same sound. See, it's that simple! You can chose other alternatives as well and together, we can make a brighter future for everyone. So, this year let's celebrate a chemical free Diwali and contribute to making the world a better place.



## POLLUTION

Pollution is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. Pollution is often classed as point source or nonpoint source pollution. In 2015, pollution killed 9 million people in the world.

Major forms of pollution include: Air pollution, light pollution, littering, noise pollution, plastic pollution, soil contamination, radioactive contamination, thermal pollution, visual pollution, water pollution.

Global warming is day to day increasing because of pollution. Global warming increases due to factory smoke and car fuels. Pollution is a harmful way in which living organisms are getting affected in many ways. We should stop pollution and plant more trees. The presence in or introduction into the environment of a substance which has harmful or poisonous effects.

### Forms of pollution

Air pollution occurs when harmful or excessive quantities of substances including the gases (CO<sub>2</sub>, CO, SO<sub>2</sub>, NO, CH<sub>4</sub>, CFC, Radon, etc.), particles (both organic and inorganic), and biological molecules are introduced into Earth's atmosphere. It may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural or built environment.

Light pollution, also known as photo pollution, is the presence of anthropogenic and artificial light in the night environment. It is exacerbated by excessive, misdirected or obtrusive uses of light, but even carefully used light fundamentally alters natural conditions. As a major side-effect of urbanization, it is blamed for compromising health, disrupting ecosystems and spoiling aesthetic environments.

Noise pollution, also known as environmental noise or sound pollution, is the propagation of noise with harmful impact on the activity of human or animal life. The source of outdoor noise worldwide is mainly caused by machines, transport (especially planes) and propagation systems. Poor urban planning may give rise to noise pollution, side-by-side industrial and residential buildings can result in noise pollution in the residential areas.



## POLLUTION

Plastic pollution is the accumulation of plastic objects and particles (e.g.: plastic bottles and much more) in the Earth's environment that adversely affects wildlife, wildlife habitat, and humans. Plastics that act as pollutants are categorized into micro-, meso-, or macro debris, based on size. Plastics are inexpensive Pollution control

A litter trap catches floating waste in the Yarra River, east-central Victoria, Australia

Air pollution control system, known as a Thermal oxidizer, decomposes hazard gases from industrial air streams at a factory in the United States of America.

A dust collector in Pristina, Kosovo

Gas nozzle with vapor recovery

A Mobile Pollution Check Vehicle in India.

Pollution control is a term used in environmental management. It means the control of emissions and effluents into air, water or soil. Without pollution control, the waste products from overconsumption, heating, agriculture, mining, manufacturing, transportation and other human activities, whether they accumulate or disperse, will degrade the environment. In the hierarchy of controls, pollution prevention and waste minimization are more desirable than pollution control. In the field of land development, low impact development is a similar technique for the prevention of urban runoff.

Practices

Recycling

Reusing

Waste minimisation

Mitigating

Preventing

Compostand durable, and as a result levels of plastic production by humans are high.






## PROJECT CLOVER

Over the course of the month of April'2019 a team from Microsoft held multiple workshops at the Bahrain polytechnic campus to educate and introduce the participants to the world of AI and Microsoft Azure. The people there really inspired and encouraged us to build a project which could assist people in their everyday lives and really make a difference. This really got us thinking and we decided to build an application that could help people with all kinds of sensory disabilities like vision impairment, auditory impairment and the blind-deaf Cognitive services APIs bit of brainstorming we developed an Android application that It is capable of analyzing real-time and can describe faces, detect the user. All they have to do is point the phone at rest. To help the auditory impaired Clover was programmed to convert speech to text and can of the audio received by we developed an ingenious way to communicate phone's vibration motor to convey information to people of the blind-deaf community. It can take inputs in the form of visual or audio data and converts it to vibrations which represent Morse code or braille to convey the message to the user.

The most difficult thing probably the glove we built signs. We ordered all the flex sensors, an Arduino and gluing things to build a glove which could detect how much each finger was being bent. This position each finger was in able to read hand signs with our own sign language from for 243 different combinations. We built the console application from the Arduino, parse the data from the phone application which sends the sentence.

After presenting our project in April 2019 we were invited to present to the public on the day of the ceremony. We were given our own booth and to demonstrate the working of the project. Highness Shaikh Khalid bin Hamad Al Khalifa. Among all other competing teams from Bahrain our team won the Hackfest.



Project Clover		
Supervisor : - Students: Kishore Kumar, Bharath Varma, Harshvardhan Solanki		
Application which utilizes Microsoft Cognitive Services to assist people with sensory disabilities. High availability. Includes custom built smart glove to read sign language.		
Introduction	Project Aim and Features	Technologies Used
<p>Clover is the result of our cumulative efforts to build an application that is targeted at assisting people with sensory disabilities. This project harnesses the power of Microsoft AI services to navigate the world around you, convert speech to text and convert text to speech with both hearing and visual impairment in communicating with the world around them. All while being guided by the AI assistant powering the application. (A.B.V.S.)</p>	<p>This project aims at assisting people with sensory disabilities by leveraging the world around, converting speech to text, showing text to speech to a user around, use a glove built by us to understand sign language and converting text to speech using the phone's vibration motor. Since it relies heavily on Microsoft's cognitive services, one can not assume that the services could only continue to improve. It enables people with sensory disabilities to interact with the world in ways they might not have imagined possible.</p>	<p>Clover was built in Android Studio using Java. We used Microsoft's cognitive services for Vision and Speech to assist in navigating the world. It also used the phone's accelerometer, camera and microphone to provide the user with a more accurate view of the world around them. It also uses an Arduino and flex sensors to create a glove we hope can one day translate sign language in real-time.</p>
System Design	Future Work	
<p><b>System architecture</b></p> 	<ul style="list-style-type: none"> <li>- Adding the Google search API to help the user navigate the world.</li> <li>- Add more sensors, a gyroscope and an accelerometer to the glove and integrate with the Arduino to build a full system that is able to navigate the world with sign language.</li> <li>- Improve the design of the glove to make it more compact and comfortable.</li> <li>- Add a method to add both training and test data using the Phone API as the input. And more...</li> </ul>	
Implementation	Conclusion	
 <p>Services for the hearing impaired</p>  <p>Services for the vision impaired</p>  <p>The smart glove which reads sign language</p>	<p>Clover will reduce the communication gap for people with sensory disabilities. It will bring people closer together. It provides a way for people to interact with the world in ways they might not have imagined possible. The glove itself is a combination of two sensors and a custom built software that converts the user's thoughts into a form that the world can understand. It is a humble design, but it is a step forward for people who rely on sign language to communicate. Clover is an initiative that we hope to see grow into a full-fledged software solution to assist people with sensory disabilities.</p>	
School of ICT- EDICT Faculty		

about our project was to read and identify hand parts from spark fun and week building it. Using Uno and a LOT of stitching together we managed to detect how much each allowed us to read which and hence we were now it. Next we constructed scratch to accommodate conditions on one hand. Final application to read the data sentence and send it to would then read out the

to the judges on 5th April present our project to the ceremony (10th April 2019). booth and presented our were also given a minute of our project to His Highness Hamad Al Khalifa. high school teams from first position in the AI



Give a gift to clean and  
green nature ...  
Say no to firecrackers







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