

## Project Groups Year 2016-17

<b>Sr No.</b>	<b>Name of Students</b>	<b>Project Title</b>	<b>Area</b>	<b>Sponsoring Company</b>
1	Kaveesha Shah Alisha Joshi Pratima Lunkad Laxmi Garde	Data Security for IoT devices using Key Lifecycle Management	Security(IoT)	IBM
2	Kaveesha Shah Alisha Joshi Pratima Lunkad Laxmi Garde	Data Security for IoT devices using Key Lifecycle Management	Security(IoT)	IBM
3	Kaveesha Shah Alisha Joshi Pratima Lunkad Laxmi Garde	Data Security for IoT devices using Key Lifecycle Management	Security(IoT)	IBM
4	Kaveesha Shah Alisha Joshi Pratima Lunkad Laxmi Garde	Data Security for IoT devices using Key Lifecycle Management	Security(IoT)	IBM
5	Kaveesha Shah Alisha Joshi Pratima Lunkad Laxmi Garde	Data Security for IoT devices using Key Lifecycle Management	Security(IoT)	IBM
6	Nain Vaswani Ritu Varma Devika Walavalkar Saiprashanti Mukherjee	A real-time smart inhaler system for remote monitoring of the asthma patients based on dosage tracking and environmental conditions.	Mobile Computing (Mobile Application),Health care, Embedded Systems	Persisitent
7	Sakshi Prakash Dhokrat Prajakta Jalindar Gawali Devina Sachin Dhuri Dharna Pradip Ingale	Vrtual Reality. Astep towards Telepresence.	Virtual Reality and Networking.	Global Super Elite
8	Aditi Rojatkar Anushka Rajwade Mrunal Kulkarni Sejal Khinvasara Anisha Sane	Target engagement using Monte Carlo simulation.	Desktop Application for WTAT (GUI)	DRDO
9	CHAITRALEE PATHAK PRIYANKASHEKDAR SNEHAL PATEL HARSHA VARGHESE	Detection and handling of cyberbullying	Sentiment Analysis / Cyber bullying	Persisitent

# Data Security for IoT devices using Key Lifecycle Management

## Abstract

Security is a critical aspect of modern computing systems. The advent of various IoT devices has created tremendous productivity and opportunities in the world we live in. But at the same time it has also created new risks for its users. The users, businesses and organizations remain under constant threats from hackers or attackers that use different techniques/tools to breach their security and cause havoc. Thus, considering proliferation of IoT devices and their proximity to the human lives, privacy and security of data on such devices has become a major concern. The data generated by these devices is huge and needs to be secured. The management of the keys to encrypt the data imposes challenges in the security domain and takes the focus on the need of a Key Lifecycle Manager server. We intend to use IBM's Security Key Lifecycle Manager to store and provide the keys required for encryption.

We intend to develop an application implemented on a Raspberry Pi board. The Raspberry Pi is interfaced with sensor device (IoT devices, for e.g. IP Camera, Healthcare monitoring devices like Fitbits, Garmins etc.) and is capable of reading the data from the sensor device. It provides key management services, encryption, storage of encrypted data along with metadata and uploading the encrypted data on a cloud platform (IBM Bluemix). The encrypted data is then uploaded on the IBM Bluemix server. The IBM Bluemix platform provides an intuitive display that can be controlled by the user. The data can be decrypted on request with the respective key from the IBM Security Key Lifecycle Manager instance. Once the utility of the decrypted data is over we remove all the decrypted data.

# A real-time smart inhaler system for remote monitoring of the asthma patient sbased on dosage tracking and environmental conditions.

## Abstract

Asthma is a complex and chronic inflammatory disease of the lower airways with patients experiencing recurrent wheezing, breathlessness, and tightness in the chest at night or early in the morning. It affects people regardless of age, and in some cases can prove to be fatal. Approximately 300 million people are asthma patients worldwide. The number of asthmatics in India is approximately 30 million. Asthma affects 3 to 38 per cent of children and 2 to 12 percent of adults. Experts say that most of the deaths caused by asthma are because of incorrect diagnoses, poor access to healthcare, costly treatment and exposure to environmental allergens. Also, in the past decade, the number of children affected with various kinds of nasal blockage and sneezing has increased. Patients, especially children, frequently miss doses or even forget to use the inhaler due to which their adherence towards asthma attack increases. Working parents may not be able to give attention towards every minute detail of their asthmatic child. Thus our system aims to control asthma by making sure that patients are taking the right dosages of medicine at right time and analyzing which allergens or environmental conditions they are most susceptible to.

Our system aims to design a smart inhaler that will help asthma patients monitor the number of doses taken for the prescribed medicine. The application will receive information about the current environmental conditions of a particular area and display it to the user. The user will receive notifications and alerts about the air quality and also if the air quality is not safe for the patient at that time. He will also get timely reminders about the doses to be taken and about the new prescriptions their doctor has sent him. The patient will be able to view the history of the doses taken. There will be a graph displaying the dosage of the user for the current week and the maximum doses he can take. The Android application will provide flexibility for the patient to view the details about any particular day. Daily health tips for the user will also be displayed. 2• A separate login will be provided for doctors where they can enter their email id and view their patients information. They will also have a mechanism of sending prescriptions to their patients and monitor their progress. Thus this will ensure that the patient will be remotely connected to the doctor.

# Virtual Reality: A step towards Telepresence.

## Abstract

With advancement in technologies, moving from two dimensions to three dimensions, the 3D technology creates an illusion of objects jumping out of the screen. Although 3D adds a depth factor to the normal 2D frame, it fails to provide the sense of presence to the user. To overcome this, an immersion technology called “Virtual reality” was proposed. Virtual Reality creates a computer generated 3D environment that transports the user into another world that can be experienced and interacted with the use of sensory devices and be viewed in 360 degree. It is a leading edge of present communication interfaces like television, computer and telephone that wraps itself around ambient sensing. The aim of this synopsis is to propose the development of an application by using virtual reality for educational training that can be responsive to its actions. This will make learning more motivating and engaging by triggering user’s interpersonal involvement with the 3D environment. Being in a hostile environment, this technology will provide grounds for difficult circumstances thereby reducing risks.

To provide a platform that can be widely adopted to support learning in higher education in which humans can interact with the VR environment. □ This project deeply combines the VR technology and teaching courses to significantly help students deepen feelings and optimize the teaching process.

# Target engagement using Monte Carlo simulation.

## Abstract

One of the most important issues any country tackles is its defence. India, like any other country spends crores on its defence research, development, testing and maintenance. It is one of the most essential requirements from the point of view of our national security. A substantial amount of the invested money is spent on testing the developed weapons and ammunition. Taking the simple example of a rocket fired from a weapon, lacks are spent on the design and manufacturing of the rocket. Additional amount is spent on the weapon which fires it, as it too has to be efficient enough to carry the load of the rockets, fire them with precision and it should be also able to climb challenging terrains, the total cost hence resulting in crores. Money becomes one aspect of this testing. The other being the safety involved in carrying out such testing. Generally, such experiments are carried out in the desert or by the sea, but mishaps have occurred several times, thus hampering the safety of the nearby villages due to collateral damage. Even CCOEW, Pune, Department of Computer Engineering 2016, though utmost precautions are taken, error is a factor which simply cannot be overlooked, especially when it involves human lives and collateral damage. Taking all the above consequences into consideration, we aim at creating a desktop application which will simulate the testing process on our computer screens. It will not completely substitute the physical testing process, but will reduce it substantially. It will save the cost and time associated with the physical experimentation to a great extent. Our software will measure the amount of target engagement, caused at the enemy side of the war field due to the firing of certain amount of ammunition from a weapon. According to the difference between the actually engaged percentage of enemy and the desirable engagement percentage, the decision of increasing or decreasing the number of ammunition fired will be taken. Our software mainly aims at optimizing the cost and time associated with the development, maintenance and testing of ammunition and weapons to our best capability, by simulating the entire firing process.

# Detection and handling of cyberbullying

## Abstract

- Cyberbullying is one of the most threatening issues on the internet affecting people across all age groups from kids to adults.  
It has led to depression of various degrees, psychological, emotional and physical stress and even suicides in some cases.  
Many available tools are not very efficient in providing help to people being cyberbullied.
- A proof of concept website to test various text inputs with primary focus on research related to text-analytics required for cyberbullying detection.
- Recognize degrading or humiliating content based on:
  - race
  - sexuality
  - physical appearance
  - gender
  - financial background
  - sexual harassment

Identify persistent harassment by a bully.