

## **CENTRE FOR AR VR & HOLOGRAM**

### **About the Centre**

The **Centre for AR VR & Hologram** has been established in the year of 2020 to provide a platform to learn, apply, design, develop and realize the realities of Augmented Reality (AR), Virtual Reality (VR) and hologram in inter-disciplinary domains. This Centre provides a platform to explore more research areas and nurture the learning skills among faculty and students of our college. This research Centre is sponsored by **AICTE-MODROB**. Seven projects that are related to AR, VR and gaming Technologies are completed through this Centre. Several industry resource people from various organizations, including Crion Technology, Aatral Creation, and Arena Training, led the workshop. Research proposals related to AR, VR and Gaming Technologies were submitted to the funding agencies SERB and DST and they are under evaluation.

### **Objectives of the Centre**

The objective is to provide a roadmap to budding engineers to become entrepreneurs and incubators in the future Technology and to support inter-disciplinary research and product development in collaboration with industries.

### **Facilities Available**

The Centre is modernized with the highly configured computer systems and the VR equipments are listed below,

- Microsoft Holo Lens industrial Edition 2
- Oculus Quest 2 Advanced All-in one Virtual Reality Headset,
- VR Cardboard
- Domo nHance VRF1 VR headset for android mobile phone

- DomonHance VRF3 VR headset with headstrap
- Google Cardboard VR headset 3D glasses
- Colourful virtual reality 3D box VR headset and Simulation Centre Handheld Mini VRHeadset.

### Faculty Members

Name of the Faculty	Specialization
Dr. E. Bhuvaneshwari, Associate Professor (Centre Incharge)	Image processing, Machine learning
Ms. B. Maheswari, Assistant Professor (Centre Incharge)	Natural language Processing, Artificial Intelligence
Dr. B. Janani, Assistant professor	Queuing Theory
Ms. R. Vijayalakshmi, Assistant Professor	Machine Learning

### Details of Industry/Academic Mentors

S.No.	Industry/Academic Mentors	Name of the Industry/Institution	Expertise
1.	Mr.P.Rathees, (Designation)	Crion Technologies (Logo)	AR/VR
2.	Mr .R. Rajkumar	SRM Institute of science and Technology, Kattangulathur.	AR/VR
3.	Mr.Suresh	Arena Multimedia Technologies	AR/VR

## Details of MoUs

S.No.	Name of the Industry	Date of MoU	Intend
1.	Baala Aaatal Solutions Private Limited	07.07.2021	Training & Consultancy in AR VR
2.	Crion Technologies, Chennai	18.10.2021	Training and Consultancy in AR VR

## Enrolled Students list

S.No	ROLL NO.	NAME WITH INITIAL	Dept
1	202101002	ABHISHAI ANANDARAJ J	CSE
2	202101003	ABISHEAK J	CSE
3	202101006	ADHITYAVARMAN S S	CSE
4	202101009	AISHWARYA S	CSE
5	202101013	ANTO HARISH J	CSE
6	202101022	ASHWATH M	CSE
7	202101026	ATHITHYA T	CSE
8	202101046	GOKUL S	CSE
9	202101062	JERISH J	CSE
10	202101069	KEERTHI A	CSE
11	202101072	KIRAN KUMAR P	CSE
12	202101102	PRAKASH T R	CSE
13	202101110	RAHUL DHEEBECK R	CSE
14	202101133	SANJAY V	CSE
15	202101136	SANTHANA GANAPATHY S	CSE
16	202101150	SIVAKUMAR S	CSE
17	202102050	MUKESH KUMAR M	ECE
18	202102055	NITHISH M	ECE
19	202102059	PRADEEP R	ECE
20	202102060	PRAGADEESWARAN S	ECE
21	202102082	SATHYA SIVAM L	ECE
22	202102102	SUKES T	ECE
23	202102117	VISHAL R	ECE
24	202104046	UMESH KANNA T	MECH
25	202106005	BALAJI S	CCE
26	202106018	KAVIYA R	CCE
27	202106030	MOGANA VARSHINI M	CCE

28	202106036	PRASANTHI B	CCE
29	202106052	SRIKANTH S	CCE
30	202106058	THIRUMALAI PRIYA D	CCE
31	202107011	AKASH S	AI&DS
32	202107014	AMIRTHAP P	AI&DS
33	202107067	JAYA SHREE S	AI&DS
34	202107073	JOTHI V	AI&DS
35	202107092	LAKSHANA S	AI&DS
36	202107097	LOKDEEP S	AI&DS
37	202107099	LOKESHWARAN S	AI&DS
38	202107102	MANIKANDAN K	AI&DS
39	202107103	MANO K C	AI&DS
40	202107106	MOHAMED SHAFEEQ I	AI&DS
41	202107114	NARESH R	AI&DS
42	202107117	NAVEEN R	AI&DS
43	202107121	NEHA N A	AI&DS
44	202107125	PERSIS FANNY ELOITE M	AI&DS
45	202107126	PONNARASAN R K	AI&DS
46	202107130	PRATHIPPA S	AI&DS
47	202107134	PRIYA K	AI&DS
48	202107138	RATISH J P	AI&DS
49	202107143	ROSHNI K	AI&DS
50	202107148	SAKTHI PRIYA S	AI&DS
51	202107149	SAKTHI SADHANA M	AI&DS
52	202107153	SANTHOSH D	AI&DS
53	202107178	VELAVAN N	AI&DS
54	202107179	VIDHYA BHARATHI K	AI&DS
55	202107184	VISHAL J	AI&DS
56	202107186	VISHNU S	AI&DS
57	202107189	YUVARAJ P	AI&DS
58	202108003	AJAY PRIYAN P	CSBS
59	202108008	BALAJI U	CSBS
60	202108038	RAHAVI S	CSBS
61	202108044	SAKTHI KUMAR V	CSBS

**Centre for AR VR Hologram(Steve Jobs Gallery)**

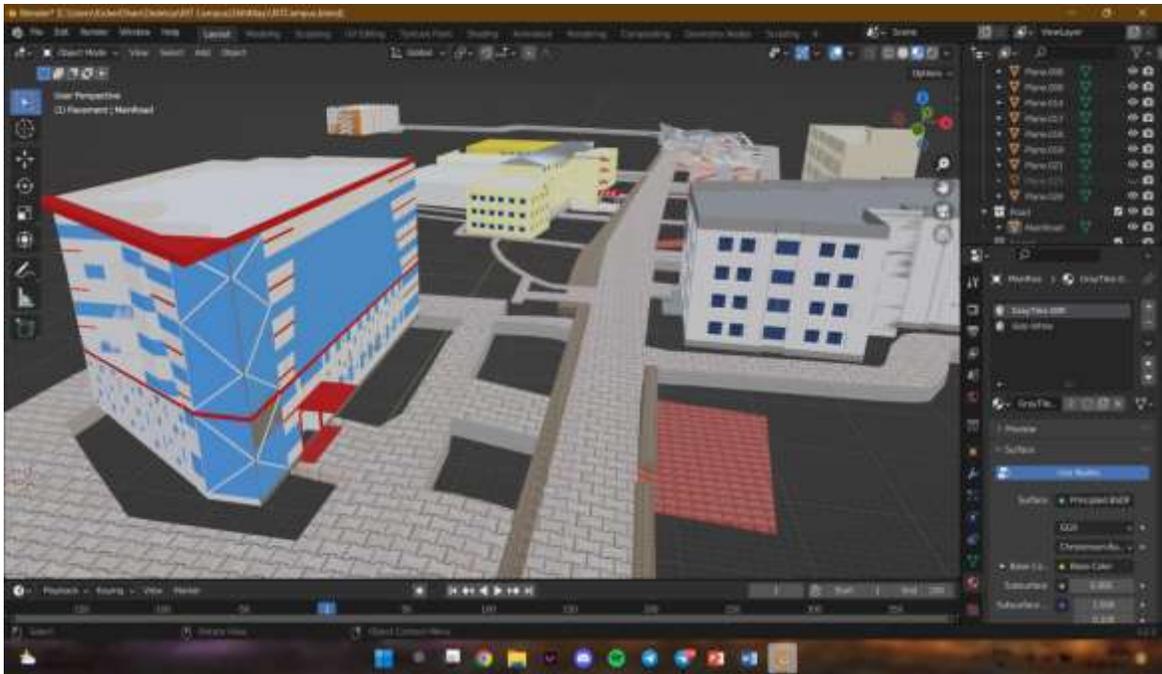


## Details of Completed/Ongoing Project:

- 1) Virtual Campus Tour – MetaRIT v1.0 (VR)
- 2) Engine Assembly
- 3) AR Medicinal Plants (AR)
- 4) RIT Buildings (AR)
- 5) Scavenger Hunt (AR)

### 1) Virtual Campus Tour – MetaRIT v1.0 (VR)

Virtual reality (VR) is a powerful and interactive technology that changes our life unlike any other. Virtual reality, which can also be termed as immersive multimedia, is the art of simulating a physical presence for the audience in places both real and imaginary. The objective is to make a virtual campus for RIT using a game engine (UNREAL Engine 5). The core of the metaverse is to facilitate the digital transformation in every aspect of our physical lives. The main goal is to make a digital copy of our RIT campus in virtual reality and The virtual world is simulated in the Head-mounted display (HMD).





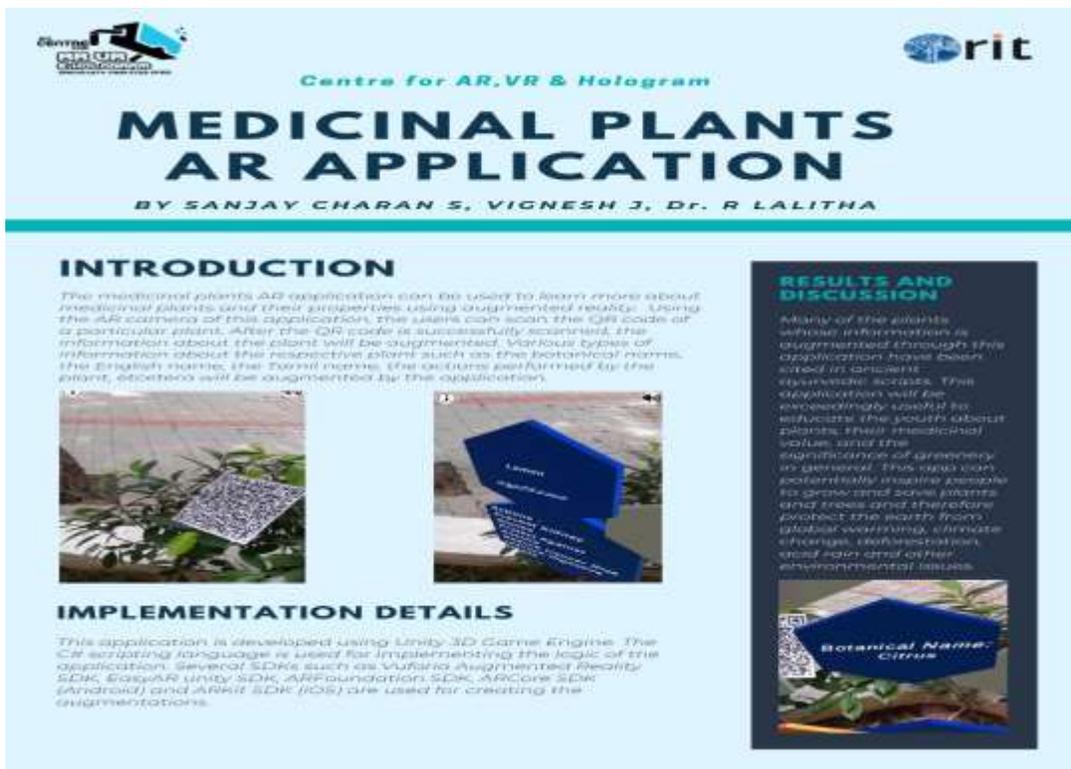
## 2) Engine Assembly:

The concept of the Engine assembly is completely a training based tutorial provided for the freshers by the automobile companies. This VR Engine Assembly project is here introduced to completely change the scenario of undertaking real time training. This software will be an actual twin for the real time engine assembly concept. The freshers will take up the training and assessment of assembling the engine virtually using the VR Engine Assembly software. This will help in avoiding creating damage to some most expensive engines and also the training time will be easily repeated until the fresher is clear in the concept.

# Engine Assembly



### 3) AR Medicinal Plants (AR):

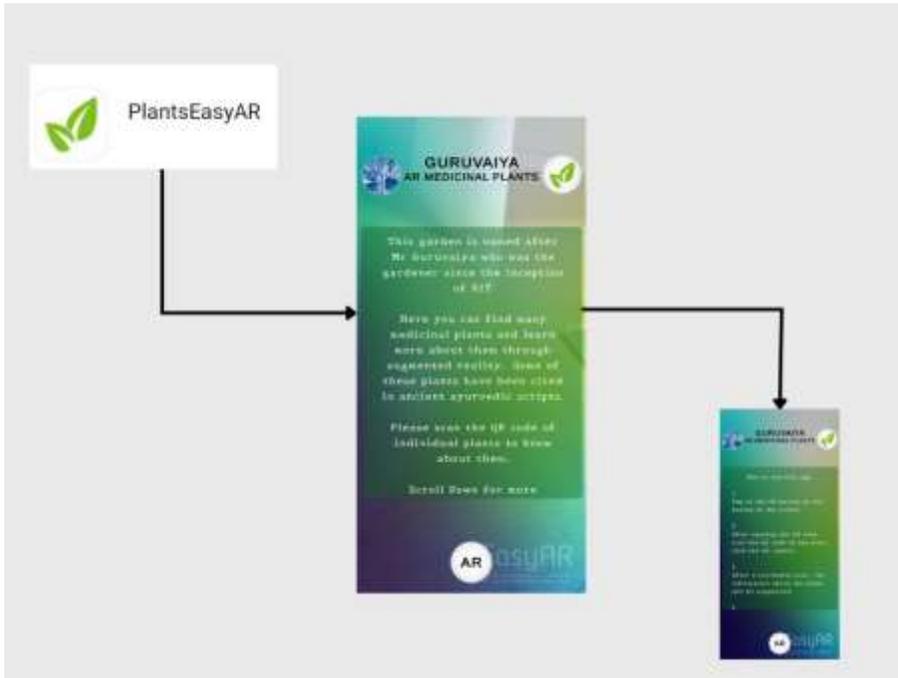


MEDICINAL PLANTS AR is a mobile application built using AR technology. The motive of the application is to make people learn more about medicinal plants and their properties using augmented reality.

With the AR camera of this application which uses image processing, the user can scan the generated QR code specifically made for each variety of medicinal plant. After the QR code is successfully scanned, the information about the plant will be augmented. Various types of information about the respective plant such as the Botanical name, English name, Tamil name, uses and advantages, etcetera will be augmented by the application. The user can interact with the augmented details about the respective plant. The instructions for “How to use the application” was added in the home page of the application. The user can access the AR camera in the home page to which a pleasant background music is also added.

## PROJECT FLOW:

### a. MEDICINAL PLANTS AR



This application is runnable on both Android and iOS platforms. The user can open the application and directly land into the home landing page. Pleasant Background audio is added. And the user can read the instructions given in the home page about “how to use the application”.

### b. LANDING PAGE



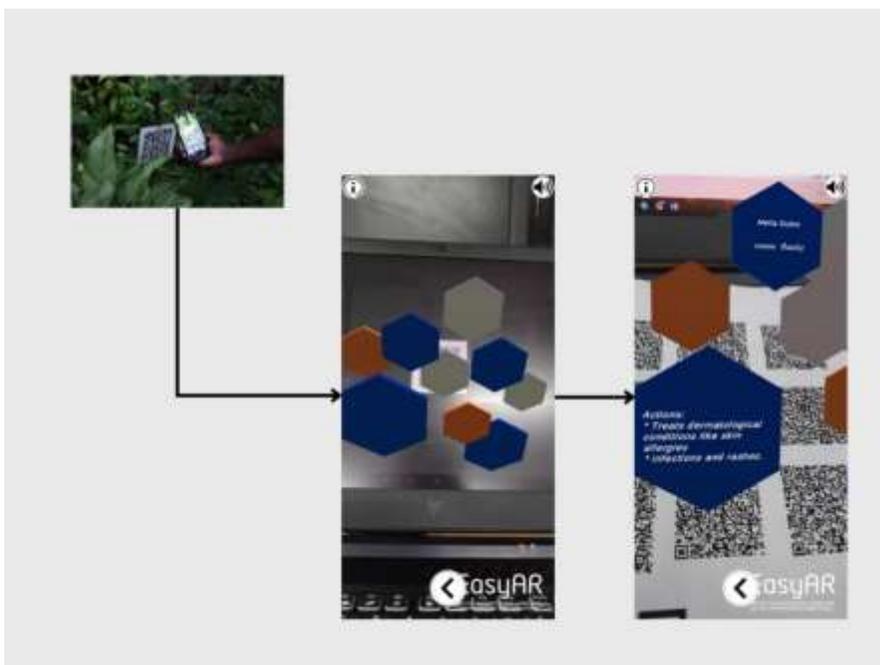
After reading the user instruction set, the user can access the ARcamera mode by clicking on the circular AR button.

### c. ARCamera MODE



Once the user clicks the circular AR button, the application directs the user to ARcamera mode in which the mobile camera will be accessed. The user needs to find and scan the image targets (QR codes) with the ARcamera.

### d. INTERACTABLE AUGMENTATION



The intractable augmented details about the medicinal plants will be displayed over the image targets respectively. The user can interact with the hexagonal plates to learn about the medicinal plants values.

#### **4) RIT Buildings (AR):**

Augmented Reality has its origin from the word “Augment” meaning to add or enhance. Augmented Reality is a combination of a real and a computer-generated or virtual world. In the field of architecture, understanding a plain 2D building plans is a complex task for inexperienced people. With the developing technology like Augmented Reality, the difficulties faced by the various architects and their clients can be reduced. The main motive of the application is to make the complex 2D building plans and previous constructed buildings into an interactive 3D augmentation of the building. This project plays a vital role in providing a mobile application which helps anyone to visualise an interactive 3D augmented building model instead of carrying some building plan sheets or an image collection.

#### ARCamera Mode:





### 5) Scavenger Hunt (AR):



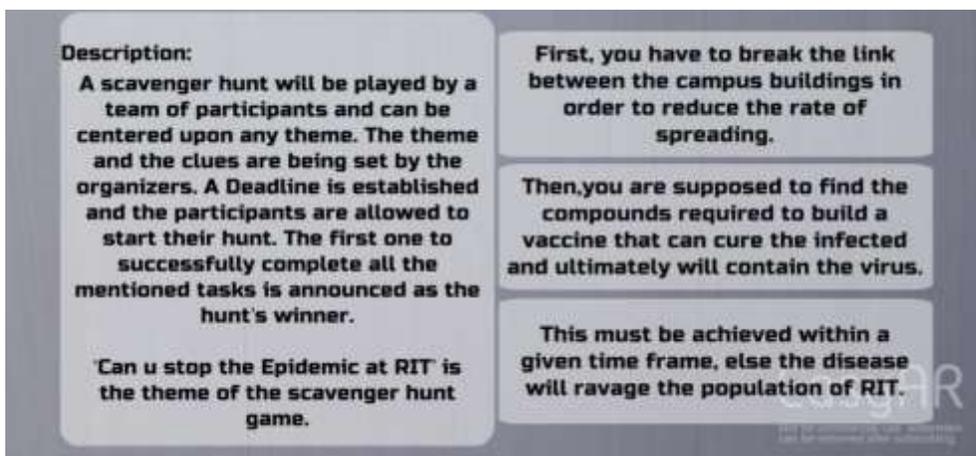
Scavenger Hunt is a game based mobile application built using AR technology with the motive to create awareness of COVID-19. The theme of the game is similar to a treasure hunt, where user has to find answers & clues for many riddles and questions, accomplish a set of tasks/objectives in order to prevent the spread of the COVID-19.

## PROJECT FLOW:

### a. Home Page:



### b. About (Game Description):



### c. ARCamera Mode:



## Projects Planned

### 1. FUNCTIONABLE CAMPUS - MetaRit v2.0 (VR):

The v1.0 MetaRit is a complete walk through simulation of virtual RIT campus. MetaRit v2.0 is a upgradation of the virtual tour to a interact able world. This version will support multiplayer functionality in which the two or more users can be in the same place. The extension of the project is where users can interact with each other such as playing games (Football, chess, etc.), using the virtual lab as such in real life, and many more interesting activities.

### 2. ENGINE ASSEMBLY (VR):

The concept of the Engine assembly is completely a training based tutorial provided for the freshers by the automobile companies. This VR Engine Assembly project is here introduced to completely change the scenario of undertaking real time training. This software will be an actual twin for the real time engine assembly concept. The freshers will take up the training and assessment of assembling the engine virtually using the VR Engine Assembly software. This will help in avoiding creating damage to some most expensive engines and also the training time will be easily repeated until the fresher is clear in the concept.

### 3. CAR LAUNCHING EVENT (VR):

One of the most expensive event that takes place in the globe is the car showcase/launching event. Many automobile companies spend a lot of money (more that million dollars) for a launch event. This VR Car Launch Event will reduce the cost immensely. The car launch event can be taken place in any type of scenarios which is not possible in real time world (Eg. Outside the planet Earth, In middle of an ocean, etc...) . There will be different styles used in this to showcase the cars immensely in the reduction of the cost.

### Events conducted by the Centre:

S.NO	NAME OF THE EVENT	VENUE	NO OF PARTICIPANTS
1	A Roadmap to AR/VR and Gaming Techniques	Online Mode	150
2	Exploring the opportunities of AR/VR in industry 4.0	RSB-Green Building	60
3	Augmented reality and Virtual reality gaming technologies	Steve Jobs Gallery(Future Tech Lab)	60

## **EVENT PHOTOS:**

### **Augmented reality and Virtual reality gaming technologies**



### **Exploring the opportunities of AR/VR in industry 4.0**



### **External Participation:**

#### **1.Workshop on Virtual Tamil cultural Museum:**

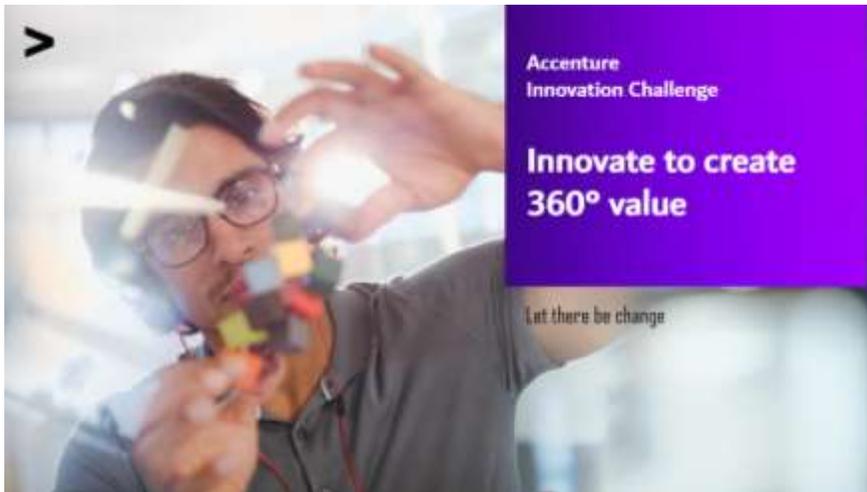
Students were attended & presented a workshop on Creating a 'Virtual Tamil cultural Museum' at IITM, Chennai on 28th September 2022.

**Students attended:**

- 1. VenkataRamanan P(IV CSE)**
- 2. Sree Aravind(III CCE)**
- 3. Avinash.J(III CSE)**
- 4. Tharun(III CCE)**



## 2. Accenture Innovation challenge:



### **CAR LAUNCHING EVENT (VR):**

In a real world car launch events, there are many challenges faced. Some of them are, choosing the venue, whether condition, more expenditure, power outage, safety measures, transportation mishap, etc... There are many other challenges too faced during a live launch event. And expected style of showcasing the cars might be very difficult. Creating a suitable theme for a suitable model is another most challenging task. The existing model is a real time launch event and a beginning stage of VR car launch events. The VR car launching event which is present today is constructed within a certain limits. And the real time launch event has many challenges to be faced. There are many expenditure spent by the company for marketing and branding the car and all those promotions are in very old classy methods.

Mahesh P - IV ECE  
Avinash J - III CSE  
Kiran Kumar - II CSE

### **ENGINE ASSEMBLY (VR):**

In the world of vast development and technology, due to certain complexity, a single mistake in implementation or a process could generate an unwanted or unexpected outcome which may cause wastage of resources. Even in the field of industrial machine assembly/automobile engine assembly/circuit designing, a single mistake by an inexperienced trainee or professional due to a lack of concentration and various possibilities could result in massive property damage. Any trainee must be able to practice and develop his skills without the fear of making any irreversible property damage. Anything which seems impossible in real life becomes possible when we enter virtual reality. A virtual reality-based application to facilitate and provide a virtual training session to a trainee without the need of any human being (trainer) and the need for a real-life engine model/parts to experience the simulation of engine assembly virtually from any point of view is the best alternative.

Venkada Ramanan P - IV CSE  
Tharun D - III CCE  
Shree Aravindh SS - III CCE

## **STRESS RELIEF MANAGEMENT**

### **Solution:**

Many researchers are suggesting that increased aggression can only become even more serious if people vent it by breaking or destroying things. So the answer to the question is that rage rooms can be used for entertainment purposes. But whether they can be used to vent anger is a huge question.

Many people try to vent out their anger by punching a punching bag. They think that they can use it as a way to release their pent-up anger ,But studies show that they only get used to releasing their anger in some way. They may even hit a bystander to vent their anger. So the ways to release anger can also lead to dangerous situations. Even-though their anger may decrease for a while; in the future, it is likely to increase even more.

When we destroy electronic such as computer monitors, CPU towers, laptops, keyboards, printers, fax machines, TVs and any other electronics it produces electronic wastes which can be prevented by VR rage room.

Sri Jai Akash - III CCE  
Luckysan J - III CCE  
Rajkamal M - III CCE