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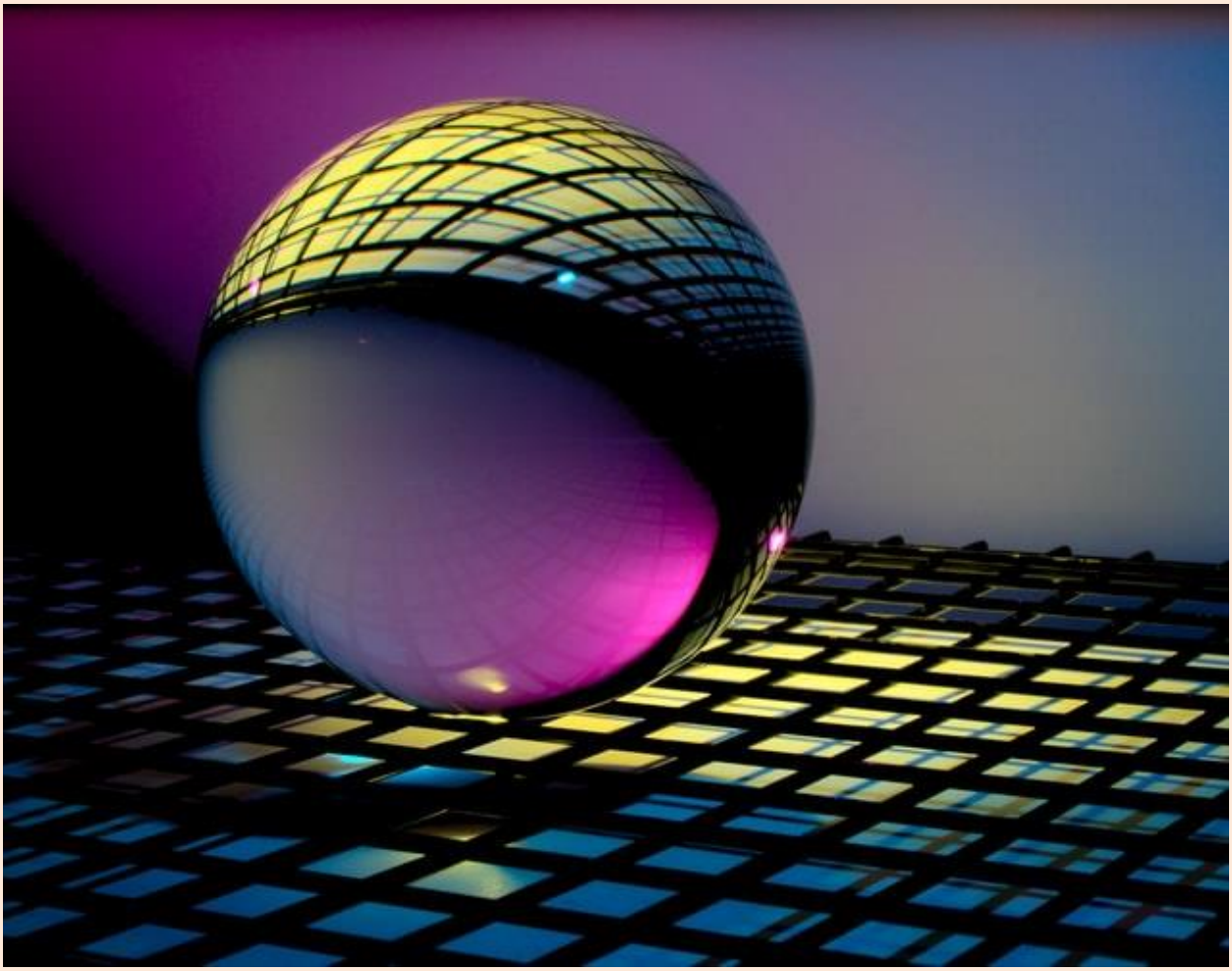
INSTITUTE OF INFORMATION TECHNOLOGY

ADDING VALUE TO ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

TECHNICAL MAGAZINE 2020-2021



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Vision

To create an Engineer, receptive to the changing demands of the global market.

Mission

- To provide technically competent professionals in service to Nation.
- To prepare graduates to respond to the needs of dynamically changing technology.

Program Education Objectives(PEOs)

- **PEO1:** To prepare graduates to work productively as successful Computer professionals.
- **PEO2:** To prepare graduates with latest skills in the field of technologies supplemented with practical orientation to face challenges of modern computing industry.
- **PEO3:** To provide environment that fosters professional growth, communication skill, team work, life-long learning skill and ability to create awareness in society about applications of technology.

Program Specific Outcomes (PSOs)

PSO1 Problem Solving and Programming Skills: Graduates will be able to apply computational techniques and complete individual practical experiences in a variety of programming languages and situations.

PSO2 Professional Skills: Graduates will be able to design and develop efficient and effective software by following standard software engineering principles.

PSO3 Successful Career: Graduates will be able to become entrepreneur and to pursue higher studies / career in IT industries.

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Program Outcomes (POs)

Graduates will be able to

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **[Engineering knowledge]**
2. Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **[Problem analysis]**
3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **[Design/development of solutions]**
4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **[Conduct investigations of complex problems]**
5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **[Modern tool usage]**
6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **[The engineer and society]**
7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **[Environment and sustainability]**
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **[Ethics]**

9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **[Individual and team work]**
10. Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **[Communication]**
11. Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **[Project management and finance]**
12. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **[Life-long learning]**

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Editorial Team

Faculty Coordinators: **A.S .Varal** **P.S.Jadhav**

We are happy to introduce you to our departmental technical magazine. I take technical magazine as an opportunity to highlight the projects, seminar topics that the students undertake enhancing their knowledge. Through projects that students execute it provides opportunity and platform for the young students to showcase their talent which can even be beneficial to any or all others to boost their technical knowledge. I believe that this magazine serves the purpose.

Student Coordinators:

Premraj Pawade

Rohan Patil

Vaibhav Pawar

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Objective behind Technical Magazine

Department of Computer Engineering is very happy and proud to publish technical magazine of year 2020-21.We had collected project titles & seminar topics from our students. Our objective behind sharing this information is to motivate students and to create awareness among them about current need in IT industry.

Department has set objective to bring technical competency among the students. Department is taking efforts for the same since second year of these students. Department arranges various expert lectures, workshops, industrial visits, learning contents beyond syllabus for the students. All these activities are planned to make students aware of current need of IT industry. Outcome of these efforts is reflected through their final year projects, placement and admission to higher studies.

Coordinator	HOD
Ms. A. S .Varal & P.S.Jadhav	Dr. S.N.Zaware

Index

I. LATEST TECHNOLOGY

1. 5G

5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks. 5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices.5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. Higher performance and improved efficiency empower new user experiences and connects new industries.

Broadly speaking, 5G is used across three main types of connected services, including enhanced mobile broadband, mission-critical communications, and the massive IoT. A defining capability of 5G is that it is designed for forward compatibility—the ability to flexibly support future services that are unknown today.

Enhanced Mobile Broadband

In addition to making our smart phones better, 5G mobile technology can usher in new immersive experiences such as VR and AR with faster, more uniform data rates, lower latency, and lower cost-per-bit.

Mission Critical Communications

5G can enable new services that can transform industries with ultra-reliable, available, low-latency links like remote control of critical infrastructure, vehicles, and medical procedures.

Massive IoT

5G is meant to seamlessly connect a massive number of embedded sensors in virtually everything through the ability to scale down in data rates, power, and mobility—providing extremely lean and low-cost connectivity solutions.

5G is designed to deliver peak data rates up to 20 Gbps based on IMT-2020 requirements. Qualcomm Technologies' flagship 5G solutions, the Qualcomm® Snapdragon™ X65 is designed to achieve up to 10 Gbps in downlink peak data rates.

But 5G is about more than just how fast it is. In addition to higher peak data rates, 5G is designed to provide much more network capacity by expanding into new spectrum, such as mmWave.

5G can also deliver much lower latency for a more immediate response and can provide an overall more uniform user experience so that the data rates stay consistently high—even when

users are moving around. And the new 5G NR mobile network is backed up by a Gigabit LTE coverage foundation, which can provide ubiquitous Gigabit-class connectivity.

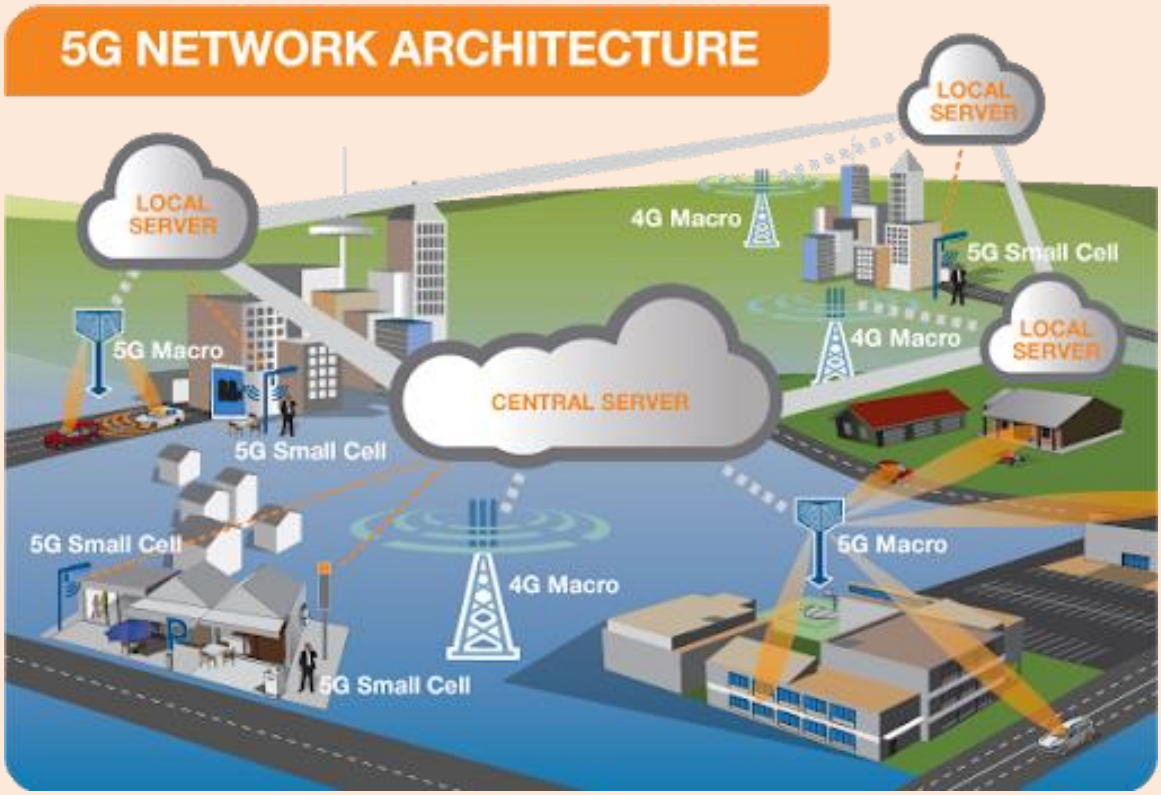

Fig1. 5G Network Architecture

2. Edge Technology

Edge computing optimizes Internet devices and web applications by bringing computing closer to the source of the data. This minimizes the need for long distance communications between client and server, which reduces latency and bandwidth usage.

Edge computing is a networking philosophy focused on bringing computing as close to the source of data as possible in order to reduce latency and bandwidth use. In simpler terms, edge computing means running fewer processes in the cloud and moving those processes to local places, such as on a user's computer, an IoT device, or an edge server. Bringing computation to the network's edge minimizes the amount of long-distance communication that has to happen between a client and server.

For Internet devices, the network edge is where the device, or the local network containing the device, communicates with the Internet. The edge is a bit of a fuzzy term; for example a user's computer or the processor inside of an IoT camera can be considered the network edge, but the user's router, ISP, or local edge server are also considered the edge. The important takeaway is that the edge of the network is geographically close to the device, unlike origin servers and cloud servers, which can be very far from the devices they communicate with.

Consider a building secured with dozens of high-definition IoT video cameras. These are "dumb" cameras that simply output a raw video signal and continuously stream that signal to a cloud server. On the cloud server, the video output from all the cameras is put through a motion-detection application to ensure that only clips featuring activity are saved to the server's database. This means there is a constant and significant strain on the building's Internet infrastructure, as significant bandwidth gets consumed by the high volume of video footage being transferred. Additionally, there is very heavy load on the cloud server that has to process the video footage from all the cameras simultaneously.

Now imagine that the motion sensor computation is moved to the network edge. What if each camera used its own internal computer to run the motion-detecting application and then sent footage to the cloud server as needed? This would result in a significant reduction in bandwidth use, because much of the camera footage will never have to travel to the cloud server.

Additionally, the cloud server would now only be responsible for storing the important footage, meaning that the server could communicate with a higher number of cameras without getting overloaded. This is what edge computing looks like.

The first computers were large, bulky machines that could only be accessed directly or via terminals that were basically an extension of the computer. With the invention of personal computers, computing could take place in a much more distributed fashion. For a time, personal computing was the dominant computing model. Applications ran and data was stored locally on a user's device, or sometimes within an on-premise data center.

Cloud computing, a more recent development, offered a number of advantages over this locally based, on-premise computing. Cloud services are centralized in a vendor-managed "cloud" (or collection of data centers) and can be accessed from any device over the Internet.

However, cloud computing can introduce latency because of the distance between users and the data centers where cloud services are hosted. Edge computing moves computing closer to end users to minimize the distance that data has to travel, while still retaining the centralized nature of cloud computing.

To summarize:

- Early computing: Centralized applications only running on one isolated computer
- Personal computing: Decentralized applications running locally
- Cloud computing: Centralized applications running in data centers
- Edge computing: Centralized applications running close to users, either on the device itself or on the network edge

Cost savings

As seen in the example above, edge computing helps minimize bandwidth use and server resources. Bandwidth and cloud resources are finite and cost money. With every household and office becoming equipped with smart cameras, printers, thermostats, and even toasters, Statistics predicts that by 2025 there will be over 75 billion IoT devices installed worldwide. In order to support all those devices, significant amounts of computation will have to be moved to the edge.

Performance

Another significant benefit of moving processes to the edge is to reduce latency. Every time a device needs to communicate with a distant server somewhere, that creates a delay. For example, two coworkers in the same office chatting over an IM platform might experience a sizable delay because each message has to be routed out of the building, communicate with a server somewhere across the globe, and be brought back before it appears on the recipient's screen. If that process is brought to the edge, and the company's internal router is in charge of transferring intra-office chats, that noticeable delay would not exist.

Similarly, when users of all kinds of web applications run into processes that have to communicate with an external server, they will encounter delays. The duration of these delays will vary based upon their available bandwidth and the location of the server, but these delays can be avoided altogether by bringing more processes to the network edge.

New functionality

In addition, edge computing can provide new functionality that wasn't previously available. For example, a company can use edge computing to process and analyze their data at the edge, which makes it possible to do so in real time.

To recap, the key benefits of edge computing are:

- Decreased latency
- Decrease in bandwidth use and associated cost
- Decrease in server resources and associated cost
- Added functionality

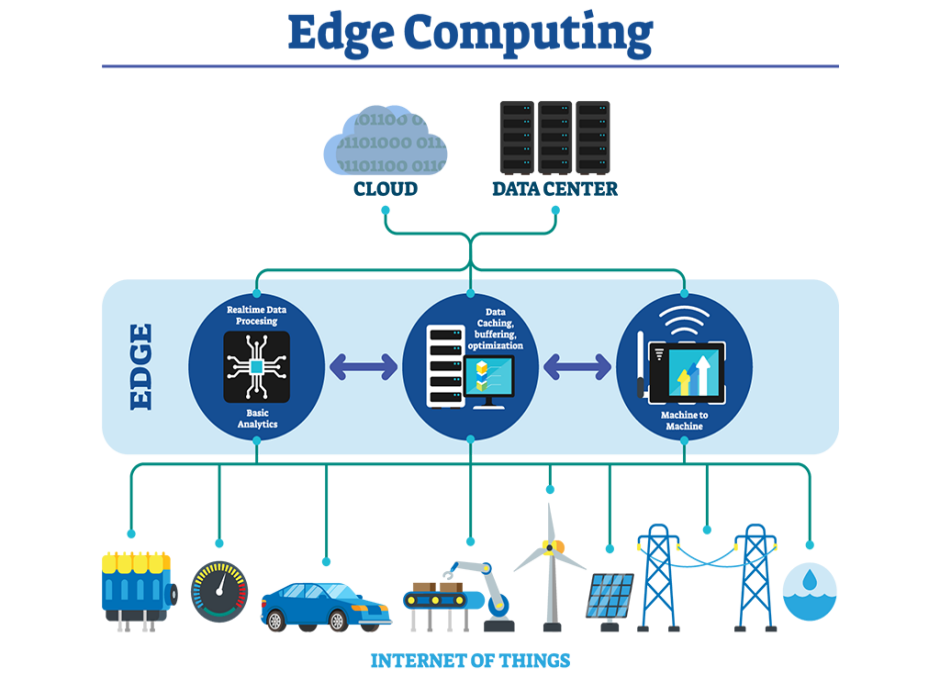

Fig. Edge Computing

3. IoT

The Internet of Things (IoT) describes the network of physical objects—"things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticated industrial tools. With more than 7 billion connected IoT devices today, experts are expecting this number to grow to 10 billion by 2020 and 22 billion by 2025. Oracle has a network of device partners.

ver the past few years, IoT has become one of the most important technologies of the 21st century. Now that we can connect everyday objects—kitchen appliances, cars, thermostats, baby monitors—to the internet via embedded devices, seamless communication is possible between people, processes, and things.

By means of low-cost computing, the cloud, big data, analytics, and mobile technologies, physical things can share and collect data with minimal human intervention. In this hyper connected world, digital systems can record, monitor, and adjust each interaction between connected things. The physical world meets the digital world—and they cooperate.

While the idea of IoT has been in existence for a long time, a collection of recent advances in a number of different technologies has made it practical.

Access to low-cost, low-power sensor technology. Affordable and reliable sensors are making IoT technology possible for more manufacturers.

Connectivity . A host of network protocols for the internet has made it easy to connect sensors to the cloud and to other "things" for efficient data transfer.

Cloud computing platforms. The increase in the availability of cloud platforms enables both businesses and consumers to access the infrastructure they need to scale up without actually having to manage it all.

Machine learning and analytics. With advances in machine learning and analytics, along with access to varied and vast amounts of data stored in the cloud, businesses can gather insights faster and more easily. The emergence of these allied technologies continues to push the boundaries of IoT and the data produced by IoT also feeds these technologies.

Conversational artificial intelligence (AI). Advances in neural networks have brought natural-language processing (NLP) to IoT devices (such as digital personal assistants Alexa, Cortana, and Siri) and made them appealing, affordable, and viable for home use.

Industrial IoT (IIoT) refers to the application of IoT technology in industrial settings, especially with respect to instrumentation and control of sensors and devices that engage cloud technologies. Refer to this Titan use case PDF for a good example of IIoT. Recently, industries have used machine-to-machine communication (M2M) to achieve wireless automation and control. But with the emergence of cloud and allied technologies (such as analytics and machine learning), industries can achieve a new automation layer and with it create new revenue and business models. IIoT is sometimes called the fourth wave of the industrial revolution, or Industry 4.0. The following are some common uses for IIoT:

Smart manufacturing

Connected assets and preventive and predictive maintenance

Smart power grids

Smart cities

Connected logistics

Smart digital supply chains

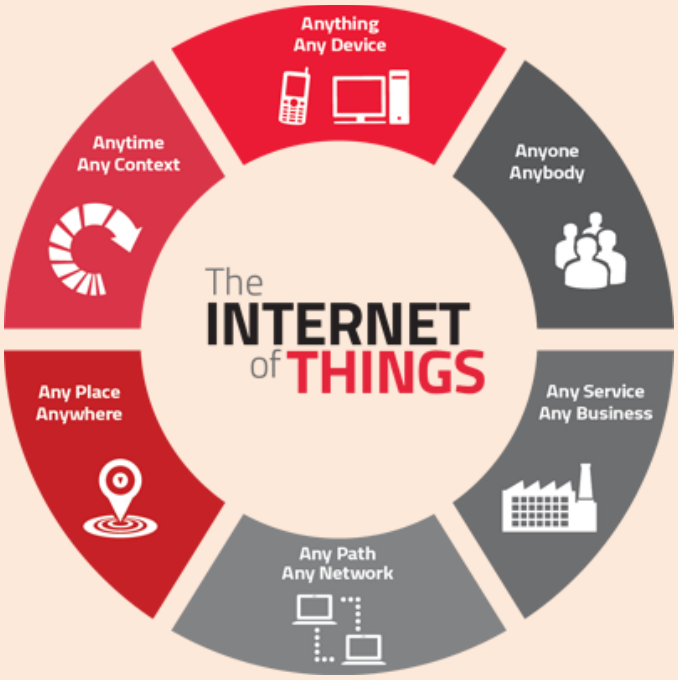

Fig. Internet of Things

II. PLACEMENT OF ACADEMIC YEAR 2020-21

Sr. No.	Name of Student	Company
1	Adinath Dattaram Dukare	Birlasoft
2	Akash Rajesh Thakare	Birlasoft
3	Divya Dinesh Pathak	Birlasoft
4	Deep Yogesh Patadiya	Birlasoft
5	Vinay Hiroo Surtani	Birlasoft
6	Vaidehi Sudhir Patil	Birlasoft
7	Vivek Wagaj	Birlasoft
8	Yash Sanjay Shende	Birlasoft
9	Yash Jitendra Kasat	Birlasoft
10	Nikhil Ramdas Mandale	Birlasoft
11	Aniket Nargotra	Birlasoft
12	Annette Thankachan John	Birlasoft
13	Aaditya Mankar	L&T Infotech
14	Danesh Adil Pagdiwalla	L&T Infotech
15	Snehal Bhanudas Wadode	L&T Infotech
16	Sonam Sunil Zirpe	L&T Infotech
17	Annette John	L&T Infotech
18	Apurva Rahul Itkarkar	L&T Infotech
19	Kakshi Vilas Dongre	L&T Infotech
20	Vranda Gupta	Jio Platforms Limited

21	Sakshi Naik	Jio Platforms Limited
22	Akshada Shelar	Winjit Technologies Pvt. Ltd.
23	Sharon Raju	Winjit Technologies Pvt. Ltd.
24	Abhishek Gaikwad	Winjit Technologies Pvt. Ltd.
25	Ritika Sahsani	Winjit Technologies Pvt. Ltd.
26	Vaishnavi Jeure	Winjit Technologies Pvt. Ltd.
27	Datta Supekar	Winjit Technologies Pvt. Ltd.
28	Sayali Patil	Winjit Technologies Pvt. Ltd.
29	Neha Ghole	Winjit Technologies Pvt. Ltd.
30	Sarthak Badgujar	Winjit Technologies Pvt. Ltd.
31	Tanmay Harshe	Winjit Technologies Pvt. Ltd.
32	Priyansh Jain	Winjit Technologies Pvt. Ltd.
33	Abhishek Gaikwad	Evosys Mastek Ltd.
34	Priyansh Jain	Hexaware Technologies limited
35	Ritu Narayani	Hexaware Technologies limited
36	Sarthak Badgujar	Hexaware Technologies limited
37	Evana Mariam Thomas	NTT DATA
38	Annette Thankachan John	NTT DATA
39	Harshit Pandey	NTT DATA
40	Ruturaj Sushil Ghodke	NTT DATA
41	Supekar Datta Rajendra	iAsys Technologies

42	Dimpal Pimpalshende	Cognizant
43	Komal Supekar	Cognizant
44	Prem Pawar	Cognizant
45	Shubham Nadhavale	Cognizant
46	Vaidehi Patil	Cognizant
47	Vranda Gupta	Cognizant
48	Ajit Patare	Cognizant
49	Shreya Sawant	Cognizant
50	Ruturaj Ghodke	Cognizant
51	Vinay Surtani	Cognizant
52	Sanskruti Pardeshi	Cognizant
53	Ritu Narayani	Cognizant
54	Annette John	Cognizant
55	Guruprasad Tupe	Cognizant
56	Gholap Siddhesh Rajesh	Cognizant
57	Evana Mariam	Cognizant
58	Harshit Pandey	Hitachi Consulting
59	Guruprasad Babasaheb Tupe	Nihilent Technologies
60	Ramkrishna R. Kakani	Nihilent Technologies
61	Kanaad Sanjay Rampurkar	Nihilent Technologies

62	Adinath Dattaram Dukare	TCS
63	Apurva Rahul Itkarkar	TCS
64	Datta Rajendra Supekar	TCS
65	Evana Mariam Thomas	TCS
66	Guruprasad Tupe	TCS
67	Harshit Pandey	TCS
68	Janhavi Dhope	TCS
69	Neha Vijay Ghole	TCS
70	Nikhil Mandale	TCS
71	Nikhil Singh	TCS
72	Pooja Khandelwal	TCS
73	Priyansh Jain	TCS
74	Ramkrishna Kakani	TCS
75	Ritika Sahsani	TCS
76	Ruturaj Ghodke	TCS
77	Sanskruti Pardeshi	TCS
78	Shubham Nadhavale	TCS
79	Shweta Rajendra Jagtap	TCS
80	Sonam Sunil Zirpe	TCS
81	Surabhi Patil	TCS

82	Vaidehi Patil	TCS
83	Harshit Pandey	Cognizant
84	Vinit Shah	Cognizant
85	Abhishek Gaikwad	Persistent Systems
86	Aditya Mankar	Persistent Systems
87	Ruturaj Ghodke	Persistent Systems
88	Ajinkya Nikam	BTOSC Infotech
89	Shubham Dilip Dalvi	Qualitykiosk Technologies Pvt. Ltd.
90	Tanvi Patil	Qualitykiosk Technologies Pvt. Ltd.
91	GuruprasadTupe	Datametica Solutions Pvt. Ltd.
92	Gauri Sangale	Datametica Solutions Pvt. Ltd.
93	Apurva Itkarkar	Datametica Solutions Pvt. Ltd.
94	Surabhi Kungare	Datametica Solutions Pvt. Ltd.
95	Tanmay Harshe	Datametica Solutions Pvt. Ltd.
96	Mayuri Thorat	Datametica Solutions Pvt. Ltd.
97	Priyanka Gaikwad	Datametica Solutions Pvt. Ltd.
98	Sunny Wable	Datametica Solutions Pvt. Ltd.
99	Shraddha Kachare	Datametica Solutions Pvt. Ltd.
100	Ritika Sahsani	Datametica Solutions Pvt. Ltd.
101	Ajit Patare	Datametica Solutions Pvt. Ltd.

102	Siddharth Nilakhe	Eccentric Engine
103	Vivek Wagaj	Accops Systems
104	Nikita Gore	Qualitykiosk Technologies Pvt. Ltd.
105	Sunny Wable	Qualitykiosk Technologies Pvt. Ltd.
106	Mayuri Thorat	Qualitykiosk Technologies Pvt. Ltd.
107	Aditya Shinde	Qualitykiosk Technologies Pvt. Ltd.
108	Mehul Ingale	Qualitykiosk Technologies Pvt. Ltd.
109	Tanmay Harshe	Coriolis Technologies Pvt. Ltd.
110	Vaidehi Patil	Datametica Solutions Pvt. Ltd.
111	Priyansh Jain	Datametica Solutions Pvt. Ltd.
112	Sayali Patil	Datametica Solutions Pvt. Ltd.
113	Keshav Katkar	Datametica Solutions Pvt. Ltd.
114	Vranda Gupta	Amazon
115	Surabhi Kungare	Amazon
116	Tanvi Patil	Amazon
117	Sejal Oswal	Amazon
118	Vivek Wagaj	Wiley m three
119	Satyam Deshmukh	Talent Serve
120	Komal Daundkar	TALKD Pvt. Ltd.
121	Kalyani Patil	Enzigma Software Pvt. Ltd.

122	Rutuja Hulsure	Coditas Solutions
123	Sanket Gulhane	Coditas Solutions
124	Ramkrishna Kakani	Bitwise
125	Yash Shende	Square Yards
126	Tanvi Sachin Patil	Square Yards
127	Susmita Gade	Square Yards
128	Pratiksha ashok pandhare	Square Yards
129	Neha Mishra	Tudip Technologies
130	Shweta Rajendra Jagtap	Xoriant

III. PROJECT LIST OF ACADEMIC YEAR 2020-21

Group No.	Name of Student	Title	Guide Name
1	Patil Vaidehi Sudhir Pathak Divya Dinesh Sangale Gauri Pravin Gupta Vranda Vikash	Gray Scale Image Colorization using Deep Learning	Dr. S. N. Zaware
2	Adarsh Rathaur Shivam Nikhil Singh Gupta Aji t Ravikant	Create Air Canvas(Open air drawing) using Python OpenCV	S. R. Agrawal
3	Ingale Mehul Sudhakar E Navaneet Kumar Nilakhe Siddharth Paraag Patil Megha Sunil	Machine learning based security system for office premises	M. P. Nerkar
4	Kamble Dipali Dilip Kale Pratiksha Hanumant Waghmare Komal Vijay Nitture Suraj Pandit	Heart disease detection using machine learning	Mr. C. N. Aher
5	Gaikwad Abhishek Vinayak Patadiya Soni Deep Yogesh Thakare Akash Rajesh Gulhane Sanket Sarjesh	Text Summarization Using Text Ranking Algorithm And Nlp Methods.	Dr. S. N. Zaware
6	Aniket Nargotra Kalbhor Sumit Shivaji Umale Aadesh Rajaram Dukare Adinath Dattaram	Predicting Employee Attrition Using Machine Learning	M. P. Nerkar
7	Patil Tanvi Sachin Nath Pratik Surendra Yadav Aditi Rajesh Shende Yash Sanjay	Static Medical History Using Blockchain	S. P. Pimpalkar
8	Shelar Akshada Sandeep Zirpe Sonam Sunil Jeure Vaishnavi Prakash Jagtap Shweta Rajendra	Distracted drivers Detection	M. A. Zope
9	Pimpalshende dimpal sanjay	Face Mask Detection	Dr. K. S. Wagh

	Gore Nikita Popatrao Wadode snehal bhanudas Daundkar komal Nana	Covid-19 using Deep learning and Computer vision concepts	
10	Niswade Sameer Rajesh Chaudhary Anubhav Mukesh Lambole Nandlal Raghunath	Prevention of Crowdfunding Fraud using Blockchain	S. P. Pimpalkar
11	Shinde Ganesh Prakash Gajbhiye Neelam VijayKumar Momin Tanjila Sayyadnajir Bendle Samen Yogesh	harmful components detection in milk for industry and local vendors	G. J. Navale
12	Kakani Ramkrishna Rameshkumar Chikhaliwala Murtuza Shabbir Patil Kalyani Pundlik Khandve Rutuja Sanjay	secrete communication Using hybrid cryptography and LSB steganography	Dr. S. N. Zaware
13	Pansare Prathamesh Ashok Ray Sushmita Shantiram Pawar Mohit Uttam Gaikwad Ashitosh Sunil	Offensive Text Detection using Machine Learning Techniques	M. P. Nerkar
14	More Sanika Jagdish Patil Sayali Namadev Kotwal Rutuja Shyam More Pranoti Jyotiram	Botanica : Plant Image Recognition using deep Learning	N. S. Patil
15	Dongre Kakshi Vilas Pagdiwalla Danesh Adil Owhal Vivek Ravindra	Dynamic feature matching for partial face recognition	Dr. S. V. Limkar
16	Mandale Nikhil Ramdas Kasat Yash Jitendra Itkarkar Apurva Rahul	Automatic Emotion Recognition with Twitter Database using Natural Language Processing	Dr. S. V. Limkar
17	Surtani Vinay Hiroo Kungare Surabhi Daulatrao Sahsani Ritika Bharat	Detection of Phishing websites using CNN	P. S. Gaikwad
18	Ayesha Sattar Choudhary Soleha Amir Magdum	A secure IoT-Based Modern Healthcare	A. S. Chavan

	Bellary Ayesha Safa Mohammad Jameel	System Using Body Sensor Network	
19	Purva Shaha Sakshi Naik Parthesh Ghushe Hitesh Patil	Scouting football players using ML	A. G. Said
20	Chavan Anand Ulhas Deshmukh Satyam Narsing Dalvi Shubham Dilip Nikam Ajinkya Manohar	Machine Learning Approach for - Grape Leaf Disease Detection	M. A. Zope
21	Ransing Anand Shivaji Badgujar Sarthak Pradip Ghole Neha Vijay Gade Susmita Vijay	Video Surveillance – Anomaly Event Detection using 2DCNN and 3DCNN	P. N. Gulhane
22	Prajan Shukla Ruturaj Ghodke Rutuja Rangrao Hulsure Priyanka Gaikwad	Urban Sound Classification using Deep Learning	Dr. S. V. Limkar
23	Pooja Khandelwal Neha Pandarkar Janhavi deoghare Pratiksha Pandhare	Alzheimer's disease classification using Deep Convolutional neural network	S. R. Agrawal
24	Jadhav Arati Devidas Kachare Shraddha Baliram Parhar Sayali Navanath Dhope Janhavi Manoj	Model for Product Demand Forecasting using Machine Learning	N. S. Patil
25	Patare Ajit Babasaheb Tupe Guruprasad Babasaheb Deo Rachit Ajay Wable Sunny Pradip	Eye exercises using AI-ML algorithms	Dr. K. S. Wagh
26	Tanmay Harshe Sahil Dhanvij Sanket Agarwal Rajmala Jambhulkar	Building a food recommendation system for auto immune diseases	M. A. Zope

27	Oswal Sejal Satish Evana Mariam Thomas Riya Reji Shirbhate Vaishnavi Manoj	Covid-19 Prediction Using Deep Learning Algorithms	Dr. S. N. Zaware
28	Shah Vinit John Annette Jain Priyansh Sharon Raju	Air Pollution Hotspot Detection and Tracing the Source Trajectories	Dr. S. V. Limkar
29	Thakare Akshay Kautik Jawale Yogini prakash Shinde Aditya Anil Waghmare Govind	Covid 19 future forecasting using supervised machine learning models(global dataset)algorithm are linera regression, artifical neural network, fuzzy classification.	A. G. Said
30	Patil Surabhi Mahesh Thorat Mayuri Govindrao Mishra Neha Shivprasad Sane Pallavi Ramdas	Fire Detection System through Video Surveillance and IoT(RNN,Fuzzy Decision Tree,Image Binarization)	P. S. Sadaphule
31	Narayani Ritu Anil Munot Pratiksha Vijay Ghodke Rachana Dagdu Ghodke Snehal Manik	Medicine Supply Chain System using Blockchain	P. S. Sadaphule
32	Ashwini Rokade Pranay Doijad Aman Kumar Sinha	A Machine Learning Aproach:Emotion based music player	P. S. Sadaphule
33	Pandey Harshit Omprakash Mankar Aaditya Sanjay Wagaj Vivek Vishwas Bit Arnab Amal	Improving Malware Detection mobile in Android Using Adverserial Attacks	Dr. K. S. Wagh
34	Nayan Rande Nikhil Rokade Kanad Rampurkar	Offensive Security AI using Hide and Seek Approach adn deep Learning over Distributed sytems	S. P. Pimpalkar

35	Upare Ketaki Sanjay Pardeshi Sanskruti Santosh Rudrawar Shrushti Subhash Sawant Shreya Ramesh	Facial Expression Recognition through Convolutional Neural Networks	P. S. Gaikwad
36	Parmar Kaushal Dhiraj Yadav Rohit Sanjaykumar Supekar Datta Rahendra	SLA Monitoring System using AI	P. S. Gaikwad
37	Supekar Komal Bapurao Nadhavale Shubham Arjun Pawar Prem Narayan Rite Vishal Suresh	Full stack web app for smart farming	Dr. K. S. Wagh
38	Kshirsagar Aniket Subhash Ghadge Aniket Suryakant Chavan Prasad laxman Gholap Siddhesh Rajesh	Corrosion prediction model for oil and gas pipeline using IOT and machine learning approach	G. J. Navale
39	Swapnil Prachande Nipankar Tejas Atul	Cloud Support for Mobile Gaming	Dr. K. S. Wagh

IV. SEMINAR LIST OF ACADEMIC YEAR 2020-21

TE-I SHIFT

Roll No.	Name	Topic for Seminar	Guide Name
1	Abhishek Agarwal	Prediction of wild life species using deep learning	P.D.Bormane
2	Medha Badgire	Dark web - crimes and detection	S.P.Pimpalkar
3	Rohit Badgujar	Protect Private Data Using Blockchain System	S.Agarwal
4	Anushka Bagal	Advanced home automation system using raspberry pi and arduino	P.D.Bormane
5	Kunal Bauskar	Blockchain bitcoin	Dr.S.N.Zaware
6	Prachiti Bhagwate	Virtual Energy Storage and Distribution using Cloud Energy Storage	P.D.Bormane
7	Nikhil Bhale	Data capsule: Representation of heterogeneous data in cloud-edge computing.	P.D.Bormane
8	Akshada Bhandari	Human and Technology : Humanoid[Face]	A.S.Chavan
9	Varun Bhandwalkar	Online Incremental Machine Learning Platform for Big Data Driven Smart Traffic Management	S.P.Pimpalkar
10	Anjali Bharambe	Efficient Mobile Cloud Computing through Computation Offloading	M.P.Nerkar
11	Ankita bhati	Edge based medical iot record system	P.D.Bormane

12	Sanjana Bhosale	Smart Home Automation Using Machine Learning Algorithms	Dr.S.N.Zaware
13	Gaurav Chauhan	Glacier changes monitoring using Remote Sensing Technology	S.P.Pimpalkar
14	Akash Chavan	Summarizing cryptocurrency.	A.S.Chavan
15	Bhavesh Dalal	HBAL – High Altitude Baloon	A.S.Varal
16	Maitrayee Dhumal	Software Factory for Pandemic and other Disasters	S.Agarwal
19	Animesh Galande	NLP in Stock Market Analysis	Dr.S.N.Zaware
20	Vaibhav Gole	Continuous Integration And Continuous Deployment Pipeline Automation Using Jenkins Ansible	S.Agarwal
21	Gore Hrushikesh Anil	Google Project LOON	P.D.Bormane
23	Pallavi Jadhav	Automatic Number Plate Recognition (ANPR)	S.P.Pimpalkar
25	Pratik Kadam	Data science for healthcare	M.P.Nerkar
26	Anirudha Kakde	Self driving vehicles	G.J.Navale
27	Yash kakde	Data science solution for Covid-19 crisis	A.S.Chavan
28	Rajeshree Kalburgi	A smart attendence system based on machine learning	P.Ghulane
29	Siddhesh Kamthe	Biometric Authentication in Security Systems	M.P.Nerkar

30	Abhijit Khatri	Computational Intelligence Based Model For Detection of disease using chest radiography	S.Agarwal
31	Nimish Khinvasara	Handwriting analysis system based on Graphology and Image Processing	A.S.Varal
32	Koli Jyoti	Designing a Li-Fi Tech: IoT Architecture	S.Agarwal
33	Lagad Vaibhav	ML Applications in the prediction & detection of cancer diesease	S.P.Pimpalkar
34	Varad Luktuke	IoT based Smart Agriculture	M.P.Nerkar
35	Mallepati Venkatsagar	Data Mining in CRM	M.P.Nerkar
36	Priyanka Malwadkar	6G-Next Gen Wireless communication	P.Ghulane
37	Ashwini Manike	Traffic prediction for intelligent transportation system using machine learning	A.S.Varal
39	Shruti Modale	Blockchain Technology Based E-voting System	Dr.K.S.Wagh
40	Aarohi Mohrir	Bluetooth Based Indoor Positioning Using Machine Learning Algorithms	A.S.Varal
41	Sakshi Nalwade	Edge computing vision and challenges	S.Agarwal
42	Himaja Namala	Character Recognition using Machine Learning and Deep Learning	Dr.K.S.Wagh
43	Achal Narsale	Internet of Things for Smart Cities	S.P.Pimpalkar
44	Tejashree Nikam	exploring Data security Issues and solutions in cloud computing	G.J.Navale

45	Makarand Nilay	Review of android malware detection approaches based on machine learning	A.S.Chavan
46	Nitesh Sharma	companion AI for Starbound game using Ability theory	A.S.Chavan
47	Mahima Oswal	Women security android applications	P.Ghulane
48	Paras Pachpute	An alternate view of the Dark web	A.S.Chavan
49	Parag Padekar	Blockchain Technology and NFT: Reshaping value chains in creative industries.	S.P.Pimpalkar
50	Shriyash Parandkar	Utilizing Block Chain Technology in Various Application Areas of Machine Learning	A.S.Varal
51	Aishwarya Pardeshi	Object Detection using Deep learning	M.P.Nerkar
52	Niket Patil	Designing a Child Safety Wearable Device	A.S.Varal
53	Rohan Patil	Blockchain-based IoTArchitecture for Supporting Hierarchical Storage	Dr.K.S.Wagh
54	Taher Patrawala	Prevention of malicious script attack using machine learning	Dr.K.S.Wagh
55	bhagyashri patwardhan	falsified drug detection using blockchain technology	Dr.K.S.Wagh
56	Premraj Pawade	Nanotechnology based highly sensitive IOT capable sensing device	S.Agarwal
57	Manasi Pawar	Research on the Optimizing Method of Question Answering System in Natural Language Processing	A.S.Chavan
58	Rutuja Paygude	Block Design in Cloud Computing	P.D.Bormane

59	Sanjana Pol	Medical Diagnostic System Using Artifical Intelligence	M.P.Nerkar
61	Gargi Rai	Cloud Cryptography for Data Security	G.J.Navale
62	shubham rajput	AES algorithm	G.J.Navale
63	Mahesh Raut	Stock Market Analysis using Supervised Machine Learning	A.S.Chavan
65	Manoj Sakat	Fake Currency Detection Using image processing	G.J.Navale
66	Yash Salokhe	Reshaping IoT through blockchain	A.S.Chavan
67	Kaustubh Salunkhe	Online Student Authentication and proctoring system based on multimodal biometrics technology	M.P.Nerkar
68	Sandhyarani survase	face mask detection using tensorflow keras and openCV	G.J.Navale
69	Shashank Sangale	Generative adversarial networks in Deep Learning	Dr.K.S.Wagh
70	Akash Sarade	Dinojs	G.J.Navale
71	Rohit sarde	fundamental of cloud computing	P.D.Bormane
72	Riya Satija	Possibility of using blockchain technology without tokens to protect banking transactions	A.S.Chavan
73	vikrant sawant	Hybrid Database Approach Using Graph and Relational Database	S.Agarwal
74	Sameer Sawarkar	Vehicle Road Surface Classifier System	M.P.Nerkar

75	Sofiya Shaikh	Blockchain based solutions to security and privacy issues in the IoT	Dr.K.S.Wagh
76	Pranav Sharma	Quantum Cryptography	G.J.Navale
77	Vaibhav Shinde	Identifying and Explaining Suspicious Behavior in Networks	S.Agarwal
78	Saurabh Shitole	virtual smart phone	G.J.Navale
79	Shreya Sunil	Reversible data hiding on encrypted images	P.D.Bormane
80	Suryawanshi Ajinkya Ashok	Efficient Detection of Spam Emails using Machine Learning	S.P.Pimpalkar
81	Nachiket Suvarnakar	Deepfake technology- Deep learning	P.Ghulane
82	Kshitij Thakur	Towards Automated Design of Generative Adversarial Networks	Dr.K.S.Wagh
83	Aditya Thorat	Dota 2 with Large Scale Deep Reinforcement Learning	Dr.S.N.Zaware
84	Akshay Thorat	Cocept of face recognisation technology	P.Ghulane
85	Hrishikesh Ukarande	AI based MPPT techniques for solar power system	P.D.Bormane
86	Shubham Wable	Medical Computer Vision using Deep Learning	Dr.K.S.Wagh
87	Zimbre Pratik Sunil	Text Recognition with Image Processing	S.P.Pimpalkar

IV. SEMINAR LIST OF ACADEMIC YEAR 2020-21
TE-II SHIFT

Sr.No.	Name of Student	Seminar Topic	Guide Name
1	Manish Kumar Bisoi	animal care and management using AI and IOT	Dr.S.V.Limkar
2	Ruchita Pawar	Pedestrian Detection in Video Surveillance using Auto Zooming	
3	Neil Duraiswami	Energy-efficiency in Cloud Computing	
4	Sakshi Sutar	Modern Computing Paradigms: Cloud, IoT, Edge, and Fog	
5	Aman Kumar	sustainable energy using ocean wave.	
6	Aashit Ladani	provide directional ocean wave information using SAR.	
7	Shraddha Sasturkar	Prediction and detection using AUV	
8	Nikhil Wani	Sustainable Energy Technologies- Power sources for submarines, torpedoes, missiles and other miscellaneous underwater utilities.	
9	Soham P Khandke	Camera Surveillance	M.A.Zope
10	Mohammed Athar	Cyber Surveillance	
11	Shruti Surve	Biometric surveillance	
12	Bhapkar Rohit Jalindar	ECG Data Analysis for Cardiac Arrhythmia Detection using Machine Learning	
13	Ebidallu Vaibhav Tulsidas	Performance Comparison of Different EEG Analysis Techniques Based on Deep Learning Approaches	
14	Mansi Deshmukh	Text Summarization	P.S.Gaikwad
15	Ajinkya Khandave	Sentiment Analysis using NLP	
16	Gayatri Mangire	Key Phrase Extraction	
17	Vishnu Parikh		
18	Anurag Patil	AI for Detection and Diagnosis of Covid-19	
19	Ninad Deshpande	Object Detection in Video Surveillance using SSD	
20	Anurag Doshi	Object Detection using CNN, RCNN	
21	Sahil Hadke	Object Detection for security applications in video surveillance using	

		YOLO	
22	Shrikant Bhalerao	Blockchain in Agriculture by using Decentralized Peer to Peer Networks	P.S.Sadaphule
23	Shreyas Shailendra Gulavani	Blockchain-enabled IPFS for Trusted Data Tracebility	
24	Shreyas Hogade	Identification of attackers using blockchain transaction	
25	Prathmesh Chaudhari	Political Voting System using Blockchain Technology	
26	Naikwadi Yogesh Suhas	Proxy re-encryption for privacy enhancement in Blockchain Carpooling use case	
27	Nikita Aher	A Media Player which operates depending on Human Emotions	
28	Aniruddha Ambekar	Smart Healthcare Management System using Blue Eyes Technology	
29	Hrithik Kucheria	Emotional Sensor using Blue Eyes Technology	
30	Ritika Nambiar	Detection and Monitoring of underwater pollution using Intelligent Sensors	N.S.Patil
31	Neeraj Ranade	Detection and Monitoring of underwater pollution using Intelligent Sensors	
32	Nisha Sangawar	Detection and Monitoring of underwater pollution using Intelligent Sensors	
33	Watni Abhishek Kishan	Fraud Detection of Credit Card through Machine Learning (Local outlier factor and isolation forest algorithm)	
34	Vedanti Sisodia	Fraud Detection of Credit Card through Machine Learning (Random Forest and Boosting techniques)	
35	Apurva Patil	Stock market analysis using supervised machine learning	A.G.Said
36	Atharva Patil	Survey of Stock Market Prediction Using Machine Learning Approach	
37	Hrishikesh Sidwadkar	Stock market analysis using ML	
38	Mandlecha Manas	3D forest Ecology	
39	Kalunkhe Harshal Ramchandra	Analysis of Encryption Techniques for Secure Communication	
40	Lambate Kiran	Image processing technology for text	C.N.Aher

	Dattatraya	recognition	
41	Nikam Harshal Dilip	Optical Character Recognition	
42	Kale Ruthik Gorakhnath	A Semi-Incremental Recognition Method For On-Line Handwritten Japanese Text	C.N.Aher
43	Gaur Nitin Wagholikar	Applications of AI In Healthcare	
44	Shivani Devidas Londhe	Applications of AI In Cyber Security	
45	Shweta More	Applications of AI In Agriculture	
46	Nandini Solse	Applications of AI in Entertainment	
47	Vishakha Zambare	Application of AI in Transportation	
48	More Kadambari Vijay	CROP prediction and efficient use of fertilizer	V.S.Bhende
49	neha Sapkale	CRop prediction	
50	Saniya Shaikh	Cloud Computing	
51	Shamli Kavle	Supervised Machine learning Approach for Crop Yield Prediction	
52	Avina Wakchaure	crop prediction using ML	
53	Deepak Vishwas Kulkarni	A Flight Stimulator Study of an Energy Control System	
54	Digvijay Hanumant Jagtap	Comparison of the Efficiency of Machine Learning Algorithms on Twitter Sentiment Analaysis of Pathao	
55	Pratik sagale	Twitter Sentiment Analaysis	
56	Bhoomika Bhagwat	Theft detection In video surveillance system using image processing	P.N.Gulhane
57	Soniya Chavan	Traffic control in video surveillance system using image processing	
58	Ashutosh Kulkarni	3D Forest Ecology	
59	Sayali Sudhir Shinde	Speculation of Forest Fire Using Spatial and Video Data	
60	Komal Bhimashankar Kamble	Underwater Sensors, Wireless sensor network	A.S.Varal
61	Sharvari Kamble	Underwater monitoring sensors	
62	Yash Mohite	Underwater Sensors, Sounder	
63	Suvarna Pawar	underwater sensor i.e sonar,echo,sounder and log4	

V. GLIMPSES OF SEMINAR TOPIC

1. A Smart Attendance System based on Machine learning

Taking attendance is an important step to monitor the activities of a student and to ensure the eligibility of the student to complete the course. Despite technological advancements, most of the educational institutes still use the old register system. In this report, a new way to take attendance of students in a classroom, which is efficient, less time consuming and which can be done using devices that are readily available with people in today's day and age such as smart phones, laptops/desktops is discussed. In the proposed model, the power of Machine learning and versatility of Google Drive have been put to good use to build a smart attendance system with Face Recognition technique. Here input to the system is a photo of the classroom and output is an excel sheet or .csv file with attendance of the students in the photo. Face recognition is one of the automated attendance system which does not involve human intervention. FaceNet is a model developed by Google researchers that has the highest accuracy in face recognition

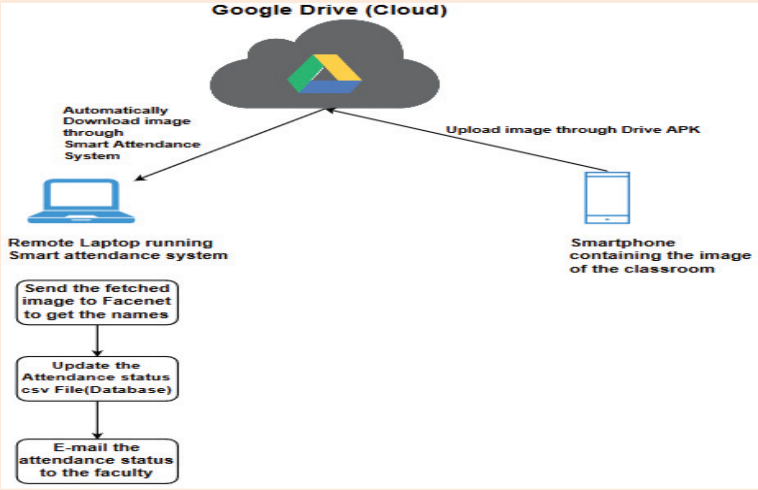

Fig: Architecture of facenet model

2. Prediction of Species of Animals using DL

The era of Deep learning started recently in 21st century, the reason why it was unsuccessful was the lack of availability of data now a days the data can be easily collected since there is technological advancements which are taking place simultaneously. As we know the human activities are accelerating and the massive acquisition of land has created the strain on the ecosystem and diversity. The forest department is at concerned about the impact of all these activities on the flora and fauna. The data collected from camera traps is in the finest form but since large amounts of data is collected by these devices makes it difficult for a human being to monitor it. Since recent development in the deep learning has made species identification very simplified thus this automated model for predicting the species the need of the hour. The accuracy of the model is good and can be used in actually predicting the endangered species and their lifestyle also can find out about local population size, locomotion, and predator prey relationships of wild species.

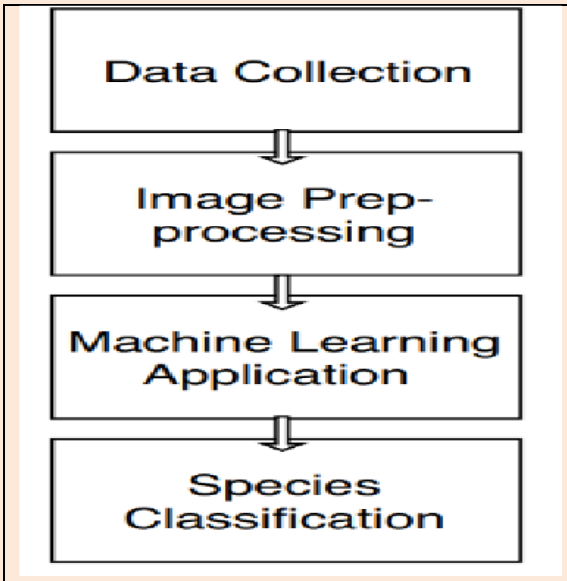

Fig. 1-Basic DL model for species classification

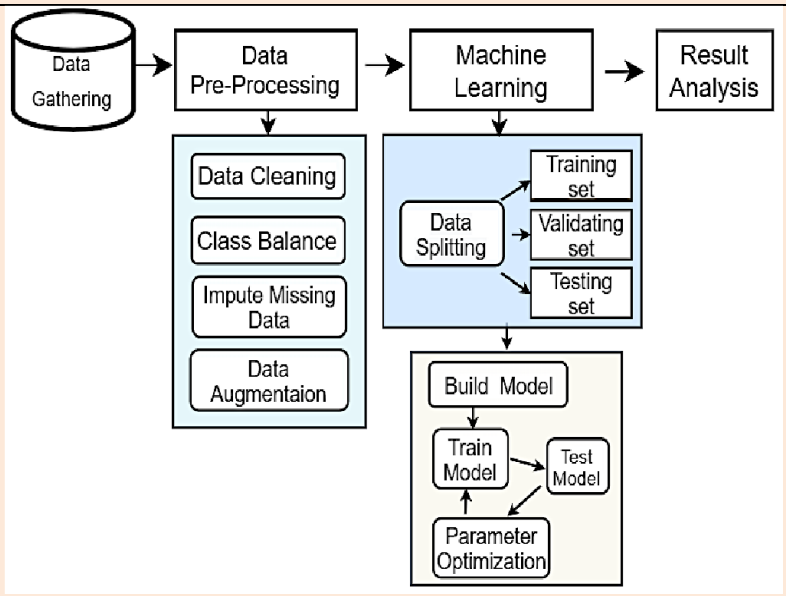

Fig. 2-DL model for prediction of wildlife prediction

3. Smart Home Automation using Machine Learning Algorithm

While using the system in Emotion detection mode, a camera is used to detect the user's face and by the deep learning algorithm implemented using convolutional neural networks it sets the room environment as per the emotion recognized. For this purpose, each emotions have a pre-set configuration of lights, music, temperature level, and specific devices like television can be turned on. User can disable this mode on command. All these Control functions for various devices can be accessed by any device that is Wi-Fi enabled like a smartphone, tablet or a computer. With further modifications (like port forwarding from the internet router), this system can be even connected to the Internet which enables access from outside the home network. The Server is only used for training and testing purposes. This can be removed since the trained Machine learning model can be directly loaded on to the raspberry pi. During such modification, the camera is to be interfaced directly with the raspberry pi.

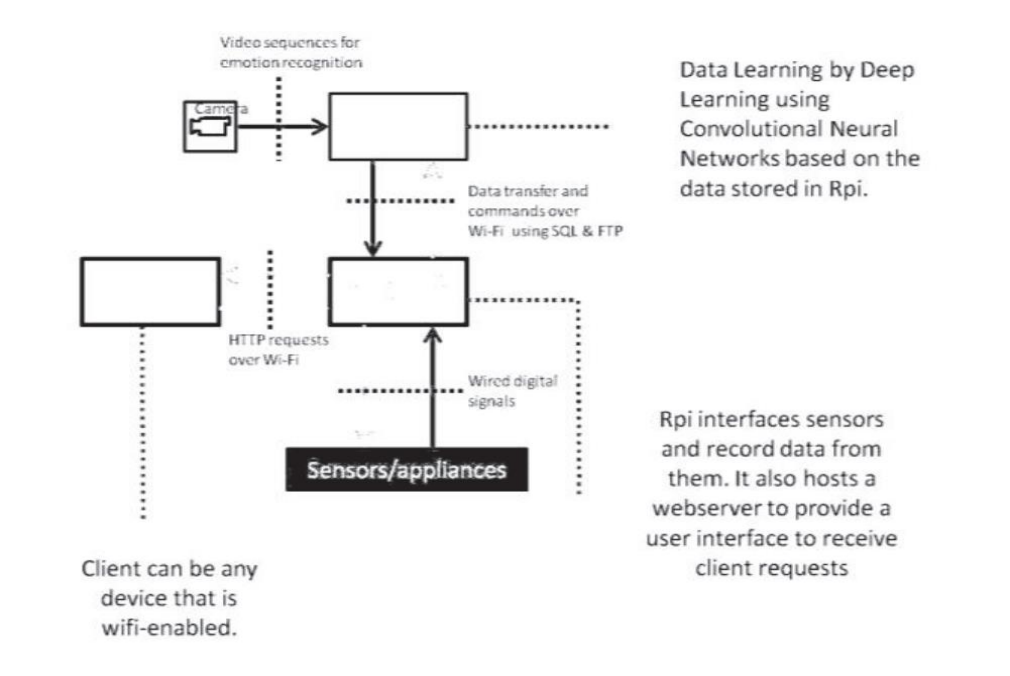

Fig1. Machine Learning Model

4. Study on Research paper "Large Scale Deep Reinforcement Learning"

Concepts: Deep Reinforcement Learning, Long Short Term Memory, Proximal Policy Optimization, Actor-Critic Method, and Adam Optimizer.

Introduction: The paper focuses on DRL-based AI called OpenAI Five that plays DOTA 2, a worldwide popular multiplayer online game. On April 13th, OpenAI Five played a high-profile game against Team OG (Dota 2 world champions) winning a best-of-three (2-0) and demonstrating that the system can learn to play at the highest levels of skill. OpenAI Five's victory marked a milestone achievement for the AI community.

DOTA 2: There are two teams of five players competing against each other. The goal of the game is to destroy the enemy's tower, known as the "Ancient" while preventing the destruction of your own. Each player can play one of the many "hero" characters the game features. Mastering the game requires combat tactics, resource management, using special skills, and developing long-term strategies. The game is played in real-time, making it more difficult. It's a game that is easy to learn, hard to master.

Objective: Today ML systems act poorly when confronted with unexpected situations. Research has shown that AI can defeat the top contenders in games like Chess and Go, but to see if AI can learn and creatively develop high-level skills in unpredictable scenarios was the main goal of this research. How OpenAI Five would defeat human players, what creative strategies it will develop, how it will control each entity (or heroes), how it will learn high-level skills that gamers use while playing the game, and how it will master the game itself.

Fig 1.Source: OpenAI (Image of AI playing the game)

Computation: Batch Size ~ 2 million parameters, 50k CPUs, 500 GPUs

Training Duration: Trained on 45,000 years of gaming experience in ten months, consuming 800 petaflops per second.

Neural Network Architecture:

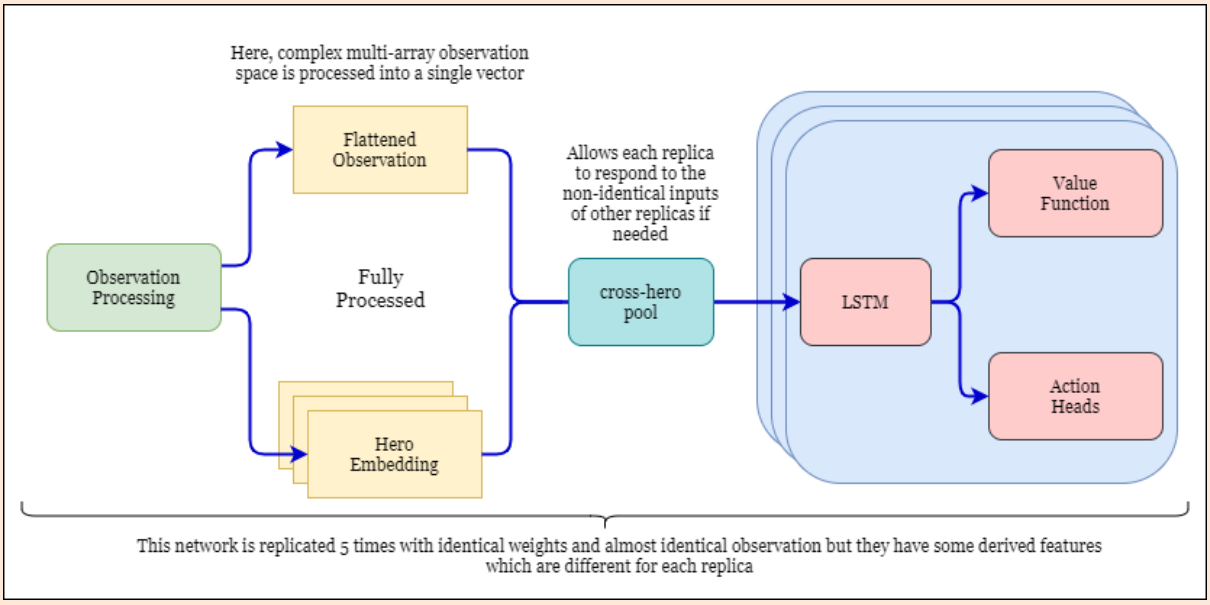

Fig 2.Reference: OpenAI research paper

Limits: Due to the vast number of parameters, it was difficult to create a perfect AI even with the available resources. Out of the 117 different characters available in the game, OpenAI limited the competition to 17 characters. This reduces the number of possibilities from approx. 89 trillion (117 choose 10) to 19,448 (17 choose 10). Note that the calculation has not considered the different strengths and weaknesses each character type has and how that would affect the training of the network. Current AI technologies are not good at learning abstract concepts and transferring knowledge to new situations like humans do.

Strength: OpenAI can't simulate humans' abstract thinking and common-sense, it can perform its own type of "thinking" and "learning" at a rapid pace. Training OpenAI Five in super-fast forward for ten months led it to the level of champions. According to OpenAI, the new model wins against the old AI in 99.9 percent of games.