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ICAN 2017

International Conference on
COMPUTING, ANALYTICS AND NET...
**ICAN2017**

*"Changes call for Innovation, and innovation leads to progress "*

## EDITORIAL TEAM

- Mr. Vinay Mehta
- Dr. Virender Kadyan
- Dr. Megha
- Mr. Ranjit Chopra

## INSIDE THE ISSUE

CHITKARA UNIVERSITY

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# IOT BASED CYBER PHYSICAL SYSTEM REVOLUTIONIZING INNOVATION

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These days, IOT, Clouds, Android are inclining in the market and are in immense demand. These advancements are giving each and every incomprehensible thing to the general public and prompting an alternate world. With the assistance of other technologies, these advances in science and innovation have resulted in supernatural occurrences and are developing day by day. Briefing these advances, how are we chipping away at them and endeavoring to profit the general public. Fundamentally, IOT is the Internet of Things, the system of Internet-associated objects which can gather and trade information by utilizing installed sensors. The Internet of things is the system of physical gadgets, vehicles, home apparatus, and different things implanted with hardware, programming, sensors and system availability which empower these items to interface and trade data. The IOT enables the articles to be detected or controlled remotely crosswise over existing system foundation, making open doors for a more straight-forward combination of the physical world into PC based frameworks and bringing about the financial advantages not withstanding decreased human intercession through Cloud Computing which is a basic piece of the Internet of things. Cloud is the conveyance of on-request, figuring assets from applications to server farms-over the internet.

Cloud processing is a general term for the conveyance of facilitated benefits over the internet. Cloud figuring empowers the organizations to expand a PC asset, for example, a virtual machine, stockpiling or an application, as a utility - simply like power - as opposed to building and keeping up registering frameworks in-house. Android is a portable working framework in light of the Linux partitions and composed principally for touch screen cell phones, for example, advanced mobile phones and tablets. Android accompanies an Android advertise which is an online programming store. It enables Android clients to choose, downloa and applications created by outsider engineers. There are diversions, application, and gadgets accessible available for users to access. Android applications are composed in the Java programming dialect. Android is accessible as an open hotspot for designers to create applications which can be additionally utilized for offering benifits in the android market. In this regard, we at Chitkara University Research and Innovation Network are taking a shot in our tasks like, Smart Portable Intensive Care Unit in which transmission of patient's crucial signs to specialist on advanced mobile phone/tablet/desktop, transmission of constant video of patients to the specialist, enable specialist to design/convey the medication through Smart Phone, making convenient trolley outfitted with all lifesaving drugs in mixture pump and key sign gadgets executing IOT, Cloud Computing and utilizing android applications. This venture expects to especially profit the elderly, basically sick and debilitated populace situated in rustic and remote zones of India. Because of shortage and uneven geological dispersion of specialists in India, there is an incredible need to expand specialists' mastery and accessibility at the purpose of patient care requirement.

Considering the other undertaking, Smart Helmet concentrates on mobile observation camera fitted into protective cap/cap with WIFI bolster and long backup. This head protector/cap might be worn by the security work force. Since he can move around in the group and furthermore while standing, he can move his travel toward any path, it moreover enables reconnaissance camera to catch pictures in jammed regions in any direction. The framework is prepared to do persistently transmitt sound/video and is fueled by sun based energy. IOT and distributed computing are assuming a noteworthy part in this undertaking as it transmits the ongoing video over the web/cloud and utilizing android application, we can see the static situation on the telephones/tablets too.

## COPYRIGHT

## PUBLICATIONS

> Sukhjit Singh, Jaiteg Singh, and Hardeep Singh Rai, "Using Latent Semantic Analysis to Identify Research Trends in OpenStreetMap". ISPRS International Journal of Geo-Information. Volume 6, No. 7 (2017), 195.

> Sukhjit Singh, Jaiteg Singh, and Hardeep Singh Rai, "Assessing OpenStreetMap Data Using Intrinsic Quality Indicators: An Extension to the QGIS Processing Toolbox". Future Internet. Volume 9, No. 15 (2017), 1-22.

> Kanika Garg and Jaiteg Singh, "A Proposed Technique for Cloud Computing Security". Innovations in Computer Science and Engineering- Lecture Notes in Networks and Systems. Volume 8 (2017), 89-95.

> Sheifali Gupta and Neeraj Kumar, "A Novel Handwritten Gurmukhi Character Recognition System Based on Deep Neural Networks". International Journal of Pure and Applied Mathematics. Volume 117, No. 21 (2017), 663-678.

> Rupesh Gupta, Manmohan Singh, Manish Singla, Maheep Singh, Sheifali Gupta and Eshita Sharma, "Analysis of Cooling Performance of Automobile Radiator using Nano-Fluid $Al_2O_3$ and Water". International Journal of Control and Automation. Volume 10, No. 11 (2017), 11-28.

> Sheifali Gupta, Rupesh Gupta and Chaitanya Singla, "Analysis of image enhancement techniques for astrocytoma MRI images". International Journal of Information technology. Volume 9, No.3 (2017), 311-319.

> Preeti Sharma, Amanpreet Kaur and Sheifali Gupta, "Energy Efficient Meetei Mayek Unicode Reader Design and Implementation". IEEE International Conference on Computing for Sustainable Global Development. Volume 11 (2017).

> Shiveta Bhatt, Amanpreet Kaur and Sheifali Gupta, "Frequency Scaling Based Power Efficient Kannada Unicode Reader Design on 40nm and 28nm FPGA". IEEE International Conference on Computing for Sustainable Global Development. Volume 11 (2017).

> Rubleen Kaur, Sheifali Gupta and Surva Narayan Panda, "Image Segmentation using Hough Transform in Simulink". IEEE International Conference on Computing for Nation Development. [Accepted]

> Neeraj Kumar and Sheifali Gupta, "An Efficient Offline Handwritten Gurmukhi Character Recognition System Based on Deep Learning & Combined Feature Extraction". IEEE International Conference on Computing for Nation Development. [Accepted]

> Amanpreet Sandhu and Sheifali Gupta, "Energy Dissipation Analysis of Sequential Circuits in QCA". IEEE International Conference on Computing for Nation Development. [Accepted]

> Meenu Garg and Sheifali Gupta, "Enhancement of Retinal Fundus Image Using Multiscale Tophat Transformation". IEEE International Conference on Computing for Nation Development. [Accepted]

> Gurleen Kaur, Sheifali Gupta, Ajit Brar and Surya Narayan Panda, "Histogram of Oriented Gradients Feature Based Coin Identification". IEEE International Conference on Computing for Nation Development.[Accepted]

> Puneet Tomar, Sheifali Gupta, Amanpreet Kaur and Sweety Dabbas, "Low Power FPGA Based Solar Charge Sensor Design Using Frequency Scaling". Gyancity Journal of Electronics and Computer Science. Volume 1, No. 1, 27-30.

> Swati Singh and Sheifali Gupta, "Apple Leaf Diseases Segmentation Using Image Processing". IEEE International Conference on Computing for Nation Development.[Accepted]

## MEETINGS UNDER SHARE
### (Showcase Harp Appreciate Research Exchange)
> Panel Discussion
**SHARE OVER COFFEE-II**
**23 September, 2017**

A coffee party was hosted to cross learn and exchange the experiences of foreign visit of faculty members – Dr. Archana Mantri, Dr. Rajnish Sharma, Dr. S N Panda, Mr. Sumeer Walia, Ms. Ankita Tuteja, Dr. Shaily Jain, Ms. Shivani Malhotra, Dr. Varsha Singh, Dr. Rajinder Sandhu and Mr. Virender Kadyan for capacity building. Panel discussion was also done to enhance the knowledge bank of scholars/faculty members.



> **Expert Lecture by Dr. Sushil Chandra, INMAS, DRDO, Delhi. 28 September, 2017**
An Expert Lecture on the topic "Virtual Reality and Cognition" was delivered by Distinguished Speaker Dr. Sushil Chandra, Scientist 'F', from INMAS, Defence Research and Development Organization (DRDO), New Delhi.



> **DNN-Based ASR Workshop**
**by Er. Virender Kadyan**
**24-27 September, 2017**

Four-day DNN Based ASR Workshop organized by CURIN in collaboration with MRSPTU Bathinda from 24 Sept to 27 Sept 2017. The talk was delivered by Dr Syed, Assistant Professor, NIT Patna. He had gained expertise in Child speech recognition. The day1 starts with a session on understanding the basic concept of Speech Signal processing using MATLAB toolkit. Day2-Day4 covers hands-on session of DNN in building an acoustic model for a small ASR engine. Students took an active part in exploring DNN and showcased their skills in implementing it using Kaldi toolkit.

He has gained expertise in the field of applied human cognition, meditation research, biosensors, mobility enhancement, augment/virtual/mixed reality, performance enhancement, cognitive assessment, cognitive rehabilitation, signal processing, and defence electronics in last 31 years of his experience as a Scientist in DRDO lab. Expert talk included the present and the future scope of Augmented/Virtual Reality applications around the globe.

**> Expert Lecture by Dr. Gaurav Gupta, Joint Director, Ministry of Electronics & Information Technology, Govt. of India**
**29 September, 2017**

Mr. Gaurav Gupta, Director, MeitY delivered an expert talk on "Digital Forensic from Researchers Perspective" in Chitkara University. Mr. Gupta has more than 7 years of advisory and research experience in the field of Digital Forensic/IT Advisory. This expert talk focused on cybersecurity awareness.



**> Workshop by Mr. Manish Choudhary, Publishing Manager, Cambridge University Press**
**13 October, 2017**

A workshop on the theme "How to author a quality book' was given by Mr. Manish Chowdhary from Cambridge University Press. More than 30 senior professors of the university attended this highly interactive session. Various steps to publish a book were highlighted. He shared his experience about publishing.It was very helpful for the audience who wanted to get their content published in the form of books.

**> SHARE OVER COFFEE after the visit of faculty members to KLE TECH, HUBALI**
**13December, 2017**

KLE TECH Hubli organized a workshop on engineering exploration in which 6 faculty members from both Chitkara University, Punjab and Baddi campus participated and this team discussed their experiences on "Share over Coffee". Team members ignited the mind of fellow faculty members of Engineering, Applied Sciences and CURIN by presenting whole experience on activity based learning. Dr Archana mantra, Pro vice chancellor introduced the six verticals of Engineering Exploration which will be commenced from second semester in January 2018 for BE students of 2017 batch.



Dr. Madhu Chitkara, Vice Chancellor after attending one of the sessions, appreciated the efforts of team members and their zeal to implement the similar methodology for BE first year students in Chitkara University.

> **Expert Talk by Dr. Vilas Majumdar (P.E, S.E) a retired professional from National Science , US 16 December, 2017**

Dr. Vilas Majumdar (P.E, S.E) a consulting Engineer and retired professional from National Science Foundation, USA visited Chitkara University and interacted with senior researchers from CURIN. He made a presentation about processes and parameters adopted by NSF to explain the granting of a research proposal to many of ME and PhD scholars.



**Expert Talk "Explore, Dream, Innovate & Fly"
9 September, 2017**

Dr. Archana Mantri, Pro Vice Chancellor delivered expert talk on "Explore, Dream, Innovate and Fly" to Alpha Teachers of B.Ed. Students during Seminar under the Module-EDSocial, EDLearners and EDExpert from 2nd to 15th September, 2017 which was organized by Chitkara College of Education.



> **Workshop on Intellectual Property Rights 15-16 September, 2017**

Ms. Benu Bansal, Mr. Amit Sundas and Ms. Sakshi Kapoor attended the two-day workshop on Intellectual Property Rights (IPR) organized by Chitkara University (H.P.) with support from Govt. of India. The focus of workshop was to bring awareness among participants about IPR issues and patent filing procedure. A quiz competition was also organized at the end of workshop and Mr. Amit Sundas got second prize in it.

## > Expert Talk "She The Incredible"
**20 September, 2017**

IEEE CIET Student Branch organized "SHE THE INCREDIBLE" under WIE (affinity group of IEEE), an expert session for Women in Engineering. The event marked the beginning of a 3-day techno fest "Techies Day-Out". Dr. Archana Mantri shared her real-life experiences' with the students and motivated the girls to pursue research.



She also emphasized on how to maintain work-life balance for future. As rightly said "if you teach a man, you educate one person, but if you teach a girl you educate a family", girls are and will always be an integral part of this evolving society. Career options in research and current research projects in the University were discussed. Participants surely took back a bag full of plethora of knowledge.

## ATTENDED EVENTS & ACHIEVEMENTS
### > International Conference on Human-Computer Interaction, INTERACT 2017
**25-29 September, 2017**

Amanpreet Kaur, Bhanu Sharma and Amit Kumar from Augmented and Virtual Reality Lab, CURIN presented their research work in the 16th IFIP TC, 13th International Conference on Human-Computer Interaction, INTERACT 2017 in Indian Institute of Technology (IIT) Mumbai, India. The principal host for INTERACT 2017 was the Industrial Design Centre (IDC) in Indian Institute of Technology, Bombay (IIT-



The conference was co-sponsored by HCI Professionals Association of India (HCIPAI) and the Computer Society of India (CSI). INTERACT is among the world's top conferences in Human-Computer Interaction. This conference aims at developing the science and technology of the interaction between humans and computing devices. INTERACT encompasses the areas of HCI in the industry of emerging economies, HCI contributions in socio-economic development, HCI for products and services in emerging markets, including mobile systems, HCI and designs for low-literacy users, HCI and designs for bottom of the pyramid users, and HCI for remote contexts, including issues related to the international outsourcing/global software development.

## > 24 Hour National Level Hackathon
**2-3 October, 2017**

Chitkara University hosted a 24-hour National Level Hackathon in collaboration with ACM-W and Oracle Academy for girl students. A team of 52 highly professional members from ACM India, Chitkara University and Oracle Academy was formed to review the ideas and select the best 20 teams out of it.



Hon'ble Dr. Madhu Chitkara, Vice-Chancellor, Dr. Archana Mantri Pro-VC CURIN, Ms. Meenu Khurana, Deputy Dean CSE of Chitkara University along with Ms. Maria Choudhary, Head R & D Department Oracle, Mr. Chandrashekhar, COO ACM India addressed the students and gave prizes to the top three winners. Top three teams got 24000/, 15000/ and 12000/ respectively as prize money and were given goodies.

## > Visit of Prof. Dr. Stephan Odenwald and Mrs. Jutta
**13 October, 2017**

Prof. Stephan Odenwald and Mrs. Jutta from Technische Universität Chemnitz, Germany visited Chitkara University, Punjab for a meeting with Dr. Archana Mantri and Mr. Sumeer Walia at Pro VC Office.



After meeting with Dr. Archana Mantri, Prof. Stephan visited CURIN Labs and interacted with students working on various research projects.

## > Lecture on "Transformation in Research and Introduction to IPR"
**26 October, 2017**

Dr. S. N. Panda Director-Research CURIN delivered two lectures on "Transformation in research and introduction to IPR" to college cadre teachers under refresher course organised by UGC HRD Academic Staff College Kurukshetra University.



## > TENCON 2017
**5-8 November, 2017**
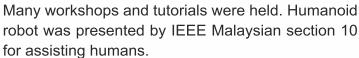
Mr. Kulbhushan Sharma became part of a flagship conference-2017 IEEE Region 10 conference (TENCON,) PENANG, Malaysia, where the big

giants from global community of professionals, academia, government, and industry assembled together to put forth their efforts in circumventing the problems faced by humanity under the Theme of "Bridging the gap". 2017 IEEE president and CEO Karen Bartleson, Hein Teik Chuah, Vincenco Piuri and Tan Eng Tong were among the prominent keynote speakers who made their presence in the conference.



Many workshops and tutorials were held. Humanoid robot was presented by IEEE Malaysian section 10 for assisting humans.

**> UNITE2017**
**9 November, 2017**

Ms. Neha Tuli, Assistant Professor (Research) participated and attended the first ever Unite India 2017 in Hyderabad. Unite gathered Unity developers, artists, publishers, educators and enthusiasts from around the globe. She gained valuable insights on the latest Unity features and market trends.Dr Archana Mantri, Pro Vice Chancellor, CURIN has delivered the talk: How to design AR/VR apps effectively for Ed-Tech at Unite India 2017, Hyderabad.

## > WEEF 2017
## 13-16 November, 2017

Mr. Sagar Juneja from CURIN presented a paper on 'Industry-Academia collaboration for building core competency in electronics' at World Engineering Education Forum - WEEF2017 held at Kuala Lumpur Malaysia.



## > IoT Training Program
## 15-29 November, 2017

Mr. Rajesh Kumar Kaushal and Mr. Naveen Kumarwent to Pune to attend two weeks IOT training under capacity building program (Millennium Alliance Grant). The focus of this training was to train the faculty working on funded projects in IOT and cloud communication.



## > Compute 2017
## 16-17 November, 2017

Dr. Rajnish Sharma, Dean (Research) attended inaugural function of ACM COMPUTE 2017 conference held at SIRT, Bhopal. During inaugural, Dr. Rajnish Sharma extended an invitation to all the delegates to attend COMPUTE 2018 conference, which will be held at Chitkara University campus.



## > GES 2017
## 28 – 30 November, 2017

Dr Nitin Saluja(CURIN) was invited to be part of the most talked event of the country in the Entrepreneurial events space, Global Entrepreneurship Summit (GES 2017). Mr. Trump heading the delegation from US and Mr.Modi from India, this is a high-powered event. Dr. Nitin Saluja has been invited for his top-notch innovation E-Deweeder and will be attending this event for three days at Hyderabad.

## > IUCEE-IIECP Pre-Certification Workshop Phase I
## 4-6 December, 2017

Dr Archana Mantri conducted 3-day IUCEE-IIECP pre-certification workshop for engineering educators at a Marwadi Education Foundation's Group of Institutions (MEFGI), Rajkot. The three-day workshop covered range of topics from Learning Styles,

The pre-certification workshop was designed to let the participants glance through to the fully blown six months duration certification program by IUCEE.

### > Workshops on Ideate, Innovate, Implement (I3)
### 18-20 December, 2017

Department of Applied Sciences in collaboration with CURIN organised a 2-day workshop to train the faculty to Ideate, Innovate, Implement (I3) and guide the students in finding solutions to campus problems. 67 faculty members of Computer Science & Engineering, Electronics and Communication Engineering, Mechanical Engineering, Applied Sciences and Civil Engineering from both campuses participated in the workshop. Experts in Arduino (Er. Amit Pandey), Design process (Er. Vinay Kukreja), and Mechanism (Er. Suraj) provided hands-on-experience during the workshop. Hon'ble Vice-Chancellor, Dr Madhu Chitkara emphasized on learning by doing methodology and appreciated the guidance & initiation by Dr Archana Mantri in designing the course of engineering exploration for BE first year students.



### > Workshop on Designing Course Handout
### aligned to Outcome Based Education
### 27th December, 2017

Dr. Archana Mantri, Pro Vice Chancellor delivered expert lecture on "Designing Course Handout aligned to Outcome Based Education" to faculty of Computer Science & Engineering, organized by CSE Dept., Chitkara University, Punjab.

### > Chitkara University to host Mega Conference Indian Pharmaceutical Congress 2017 (IPC-2017)
### Dec 22nd to 24th

Chitkara Universitry will be hosting the mega international pharmaceutical conference-the "INDIAN PHARMACEUTICAL CONGRESS-2017 (IPC-2017) between 22nd to 24th December 2017, with an expected participation of more than 8000 national and international delegates, renowned industry and academic experts from within India and across the globe. The event will also include scientific and research finding presentations as posters and oral sessions by delegates, plenary sessions by expert speakers, a mega Pharmaceutical Industrial Expo with parallel business meets, Placement Activities for students and Cultural events. The event is an annual activity conducted by various Pharma associations, including Indian Drug manufacturer's Association (IDMA), Indian Pharma Association (IPA), Indian Hospital Pharmacist association (IHPA), Association of Pharma Teachers of India (APTI), All India Drug Control Officer,'s Association (AIDCOA), Indian Pharmacy graduate Association (IPGA) and many more connected peripherally, national bodies including FICCI, Department of Pharmaceuticals Govt of India and others. Dr Madhu Chitkara, Hon VC, CU, Punjab met the visiting officials from IPCA and Central APTI for the initiation of planning during their visit, who thanked CU for extending support for the event. Haryana and Punjab APTI Executive members Dr R K Goel, President (Pb), Dr D kaushik, President (HYN) and Dr S Arora, VP, (Pb), Director CCP hosted the first meet.

# ICAN 2018

> ICAN2017 was the maiden edition of international conference on computing, Analytics & Networks.
> Organised in succession of successfully conducted National symposium on Computing, Analytics & Net-works- NCAN2017 on April 15, 2017. NCAN2017 provided budding researchers an opportunity to present their work and obtain feedback from experts there by prepare themselves for the international conference.
> Technical Program Committee of ICAN2017 comprised of leading researchers of 5 different countries.
> We had a team of about 50 reviewers including 20 reviewers from outside India.
> Each paper was scrutinized and critically reviewed by at least 3 reviewers.
> The acceptance rate of ICAN2017 was less than 30%.
> ICAN2017 was organised on October 27-28, 2017 at Chitkara University, Punjab, India.
> 16 Paper Presentations in three parallel tracks i.e. computing, Analytics & networks.
> 4 Keynote Talks.
> 1 hands-on Tutorial
> 100 delegates comprising of students, research scholars, academicians & industry professionals from 5 different countries participated.
> Springer to publish post conference proceeding of ICAN2017 in Springer CCIS Series

## CONSULTANCY PROJECTS

>Investigation on Mottling and Ghosting Problems in Printing Press
Organization: Bansal Graphics, Chandigarh
16 September, 2017 – 16 November, 2017
Project Head: Dr. Yogesh Kumar Singla

## PROVISIONAL PATENTS FILED

> **Compact Urea Spreading Machine**
Dt. 29/09/2017        No. 201711034792
**Inventors:** Mr. Virender Kadyan, Dr. Deepika Koundal, Dr. Jagpreet Sidhu, Dr. Amandeep Singh Oberoi

> **Passenger Drop-Off Location Reporting Unit**
Dt. 31/10/2017  No. 201711038729
**Inventors:** Mr. Tushar Dhawan

> **Wearable, Real Time, Closed Loop And Non Invasive Insulin Delivery System**
Dt. 9/11/2017 No. 201711309928
**Inventors:** Dr. Nitin Saluja, Mr. Debrishi Ghosh, Mr. Gurjeet Thakur, Mr. Varinder Singh, Dr. Rajesh Khanna

> **Improved Process for Manufacture of Extended Release Dosage Forms**
Dt. 14/11/2017        No. 201711040531
**Inventors:** Ms. Sonia dhiman, Mr. Gurjeet Thakur, Mr. Sandeep Arora

> **Machine for Detection of Fake Cheque in Banking Operation**
Dt 14/11/2017        No.        201711040525
**Inventor:** Dr. K.R. Ramkumar

> **Novel Therapeutic Agent For Prevention And Treatment of Parkinson's Disease**
Dt. 14/11/2017        No.        201711040638
**Inventors:** Mr. Gurjeet Thakur, Ms. Sonia Dhiman, Mr. Avneesh Singh, Mr. Paramdeep Singh, Mr. Mayank Sippy

> **System for Auto Filling of Water Bottles Lying in Refrigerator**
Dt. 17/11/17  No.                201711041229
**Inventors:** Mr. Vikas Jindal, Mr. Vedant Kumar Bhatt, Ms. Bhanu Sharma

> **Glucometer**
Dt. 1/12/2017   No. 299923
**Inventors:** Mr. Nitin Saluja, Mr. Varinder Singh, Dr. Archana Mantri

> **Thyrometer**
Dt. 1/12/2017        No. 299924
**Inventors:** Dr. Varsha Singh, Dr. Nitin Saluja

> **Integrated Machine for Drying and Refrigeration of Fruits and Vegetables**
Dt. 23/10/2017        No.201711037404
**Inventors:** Mr. Manjit Singh, Mr. Manik Beniwal

> **Anti-Suicide Fan and Method of use Thereof**
Dt. 30/12/17  No. 201711047423
**Inventors:** Mr. Kashish Mathreja, Mr. Harvinder Shera, Mr. Rupesh Gupta

> **Improved Potable Earthen Drinking Water Unit**
Dt. 20/12/2017        No. 201711045864
**Inventors:** Dr. Jyotsna Kaushal, Dr. Himanshu Sharma, Mr. Arun Upmanyu, Ms. Pooja Mahajan

> **Assistive Electronic System for Lifting Weight for Long Duration**
Dt. 15/12/2017        No. 201711045103
**Inventors:** Mr. Deepanshu Bhardwaj, Mr. Virender Kadyan, Mr. Simranpreet Singh Thukral, Mr. Atimuqt Dogra

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