Report on Knowledge Manthan, 2022 Held on 12th Feb 2022

Date of Event	**12th Feb 2022**
Name and Type of Event	1. Prof. Mukesh Kumar Sharma on the topic "Smart Materials: A brief Introduction and its future scope" 2. Prof Amit Prakash Sen on the topic "Noise Cancelling in Contaminated Images"
Conducted by	Dr. Anupam Kumari
Number of Participants	**32**

The Resource person Prof. Mukesh Kumar Sharma and 2. Prof Amit Prakash Sen are Assistant Professor of the School of Engineering and IT, ARKA JAIN University, Jamshedpur.

The speaker gave informative and illuminating lecture with valuable content. The session was very valuable for Faculties, Researcher and Students. The technological field of ―smart materials‖ is not transparent or clearly structured. It has evolved over the past decades with increasing pace during the 1990s to become what it is today, at the transition to the next millennium. Generally speaking these materials respond with a change in shape upon application of externally applied driving forces. The concept of smart materials is being extended to rather sophisticated systems that consist of both smart and traditional materials. The field of smart materials attempts to combine the sensor (that detects an input signal), actuator (that performs a responsive and adaptive function) and the control circuit or as one integrated unit. Actuators may be called upon to change shape, position, natural frequency, or mechanical characteristics in response to changes in temperature, electric fields, and or magnetic fields. This session is a comprehensive review and show the significance of smart materials in future potentials

Proper choice of denoising filter is a very important requirement for efficient image restoration because most of the filters only reduce the effect of the noise rather than removing it. In this session a novel algorithm for filtering of gaussian noise based on the statistics of the robust estimation is proposed. The gaussian noise is replaced by either the computed mean of the adaptively increasing localized window frame or the last processed pixel. Improved Robust Statistics are then applied to obtain the final denoised output. The proposed algorithm is objectively evaluated using Peak Signal to Noise Ratio (PSNR) as figure of merit. Simulation results indicate a

marked improvement in the quality of the restored image. Filtering image data is a standard process used in almost every image processing system. Filters are used for this purpose. They remove noise from images by preserving the details of the same. The choice of filter depends on the filter behavior and type of data.

About the Speaker:-

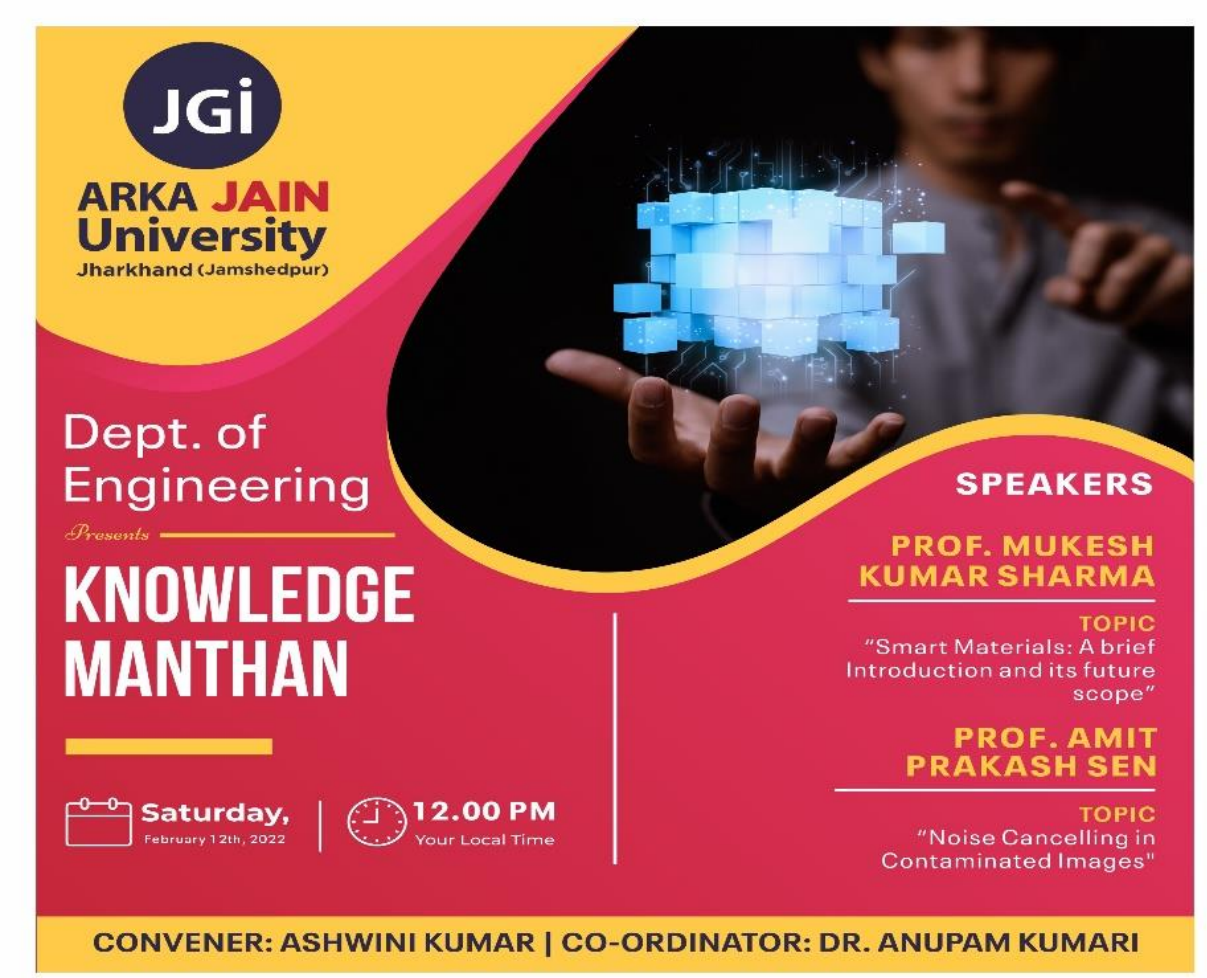
Prof. Mukesh Kumar Sharma is Assistant Professor of the Dept of Engg, School of Engineering and IT, ARKA JAIN University, Jamshedpur..

Prof Amit Prakash Sen is Assistant Professor of the Dept of Engg, School of Engineering and IT, ARKA JAIN University, Jamshedpur.

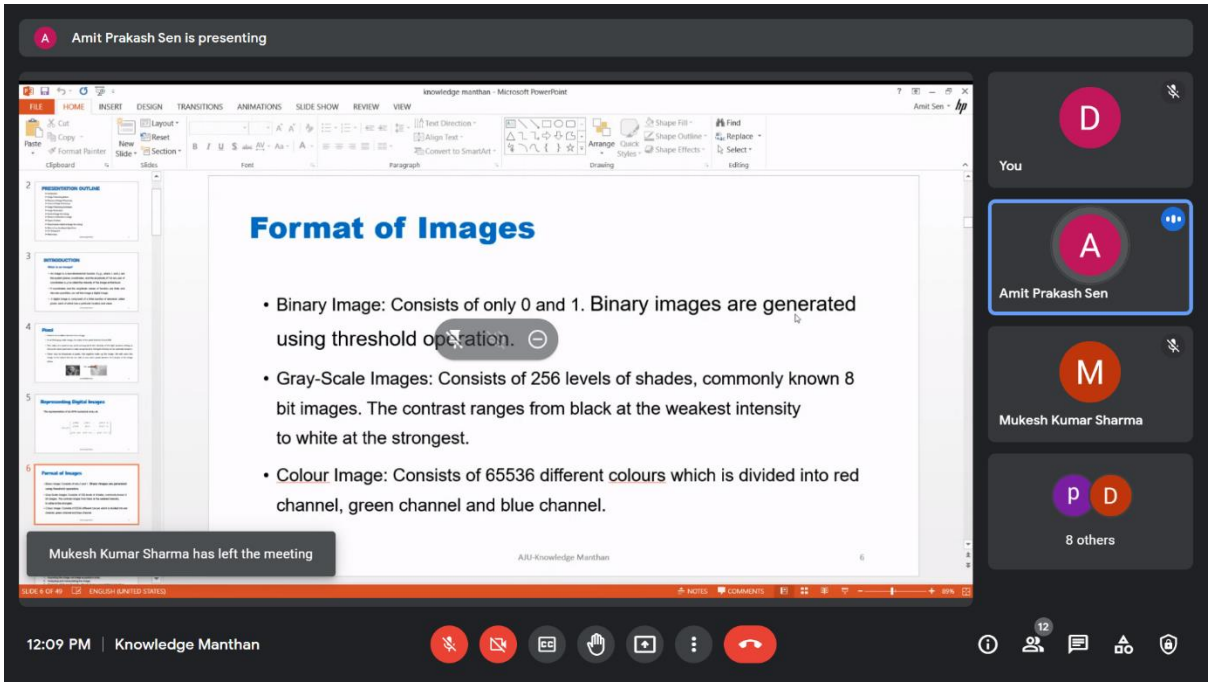
Venue and Participants:-

Knowledge Manthan was conducted online on Google Meet Platform. Total participants attended were 35

Event Poster



Event Pics


Amit Prakash Sen is presenting
Format of Images
• Binary Image: Consists of only 0 and 1. Binary images are generated using threshold operation.
• Gray-Scale Images: Consists of 256 levels of shades, commonly known 8 bit images. The contrast ranges from black at the weakest intensity to white at the strongest.
• Colour Image: Consists of 65536 different colours which is divided into red channel, green channel and blue channel.
Mukesh Kumar Sharma has left the meeting
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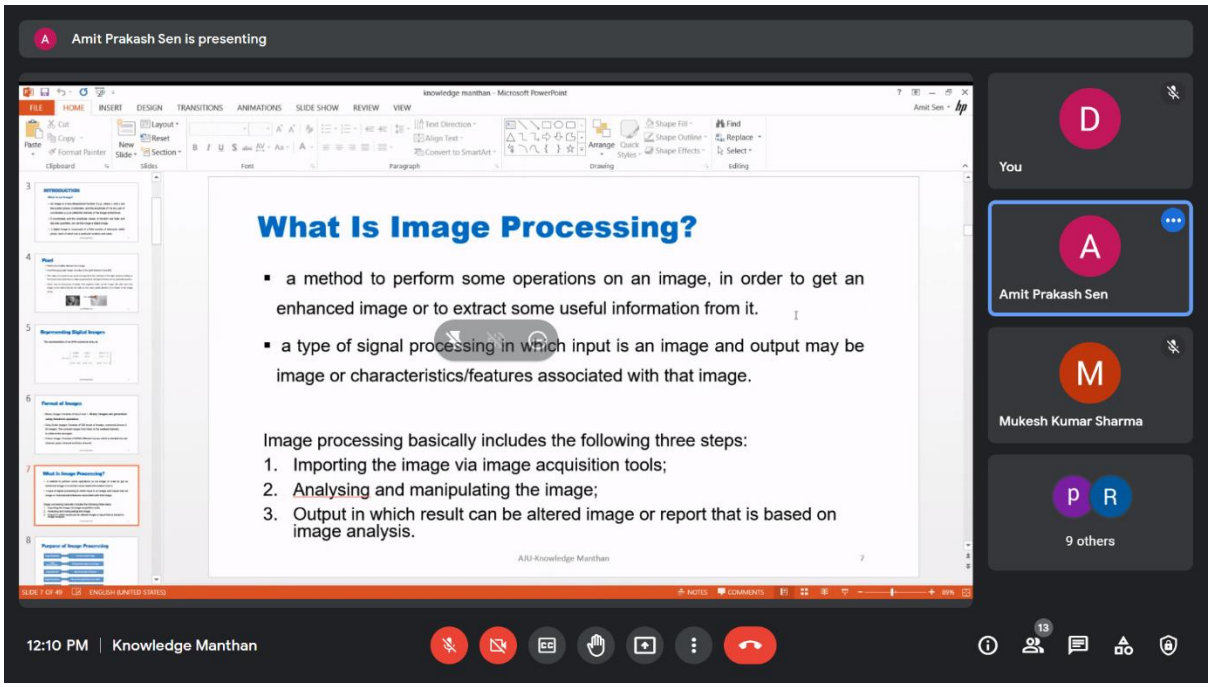
Amit Prakash Sen is presenting
What Is Image Processing?
▪ a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it.
▪ a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.
Image processing basically includes the following three steps:
1. Importing the image via image acquisition tools;
2. Analysing and manipulating the image;
3. Output in which result can be altered image or report that is based on image analysis.
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Mukesh Kumar Sharma
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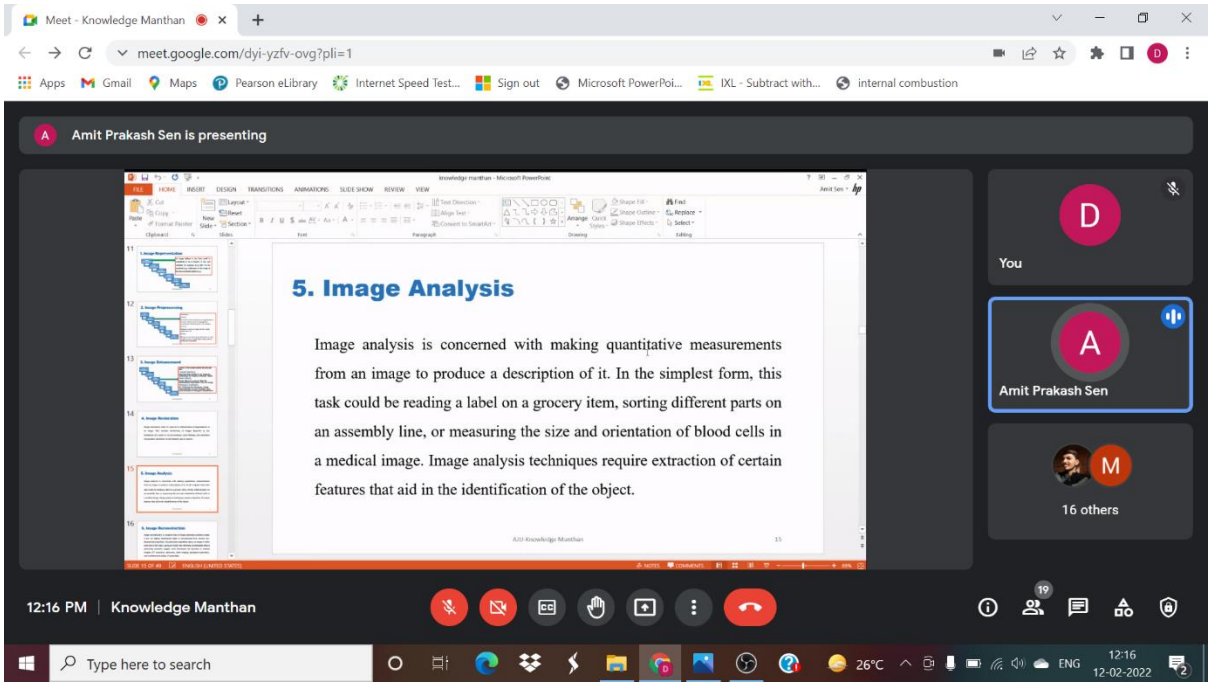
Meet - Knowledge Manthan
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Amit Prakash Sen is presenting
5. Image Analysis
Image analysis is concerned with making quantitative measurements from an image to produce a description of it. In the simplest form, this task could be reading a label on a grocery item, sorting different parts on an assembly line, or measuring the size and orientation of blood cells in a medical image. Image analysis techniques require extraction of certain features that aid in the identification of the object.
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Amit Prakash Sen
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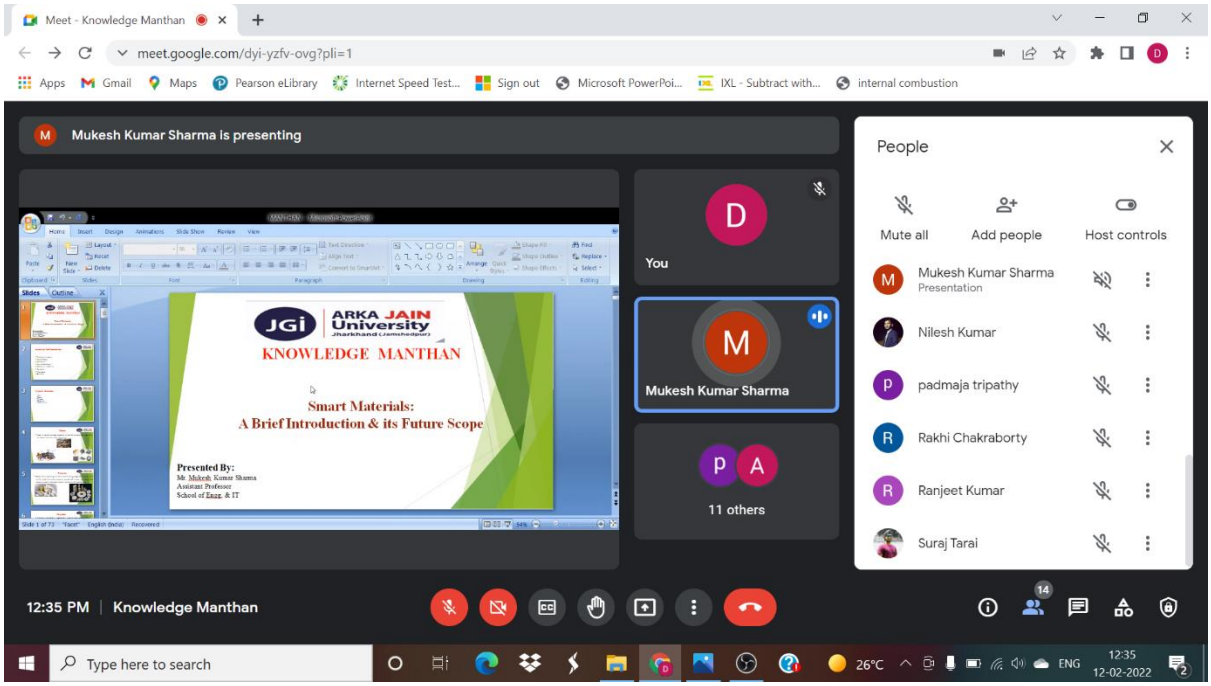
Meet - Knowledge Manthan
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Mukesh Kumar Sharma is presenting
KNOWLEDGE MANTHAN
Smart Materials:
A Brief Introduction & its Future Scope
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Mukesh Kumar Sharma
Presentation
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Rakhi Chakraborty
Ranjeet Kumar
Suraj Tarai
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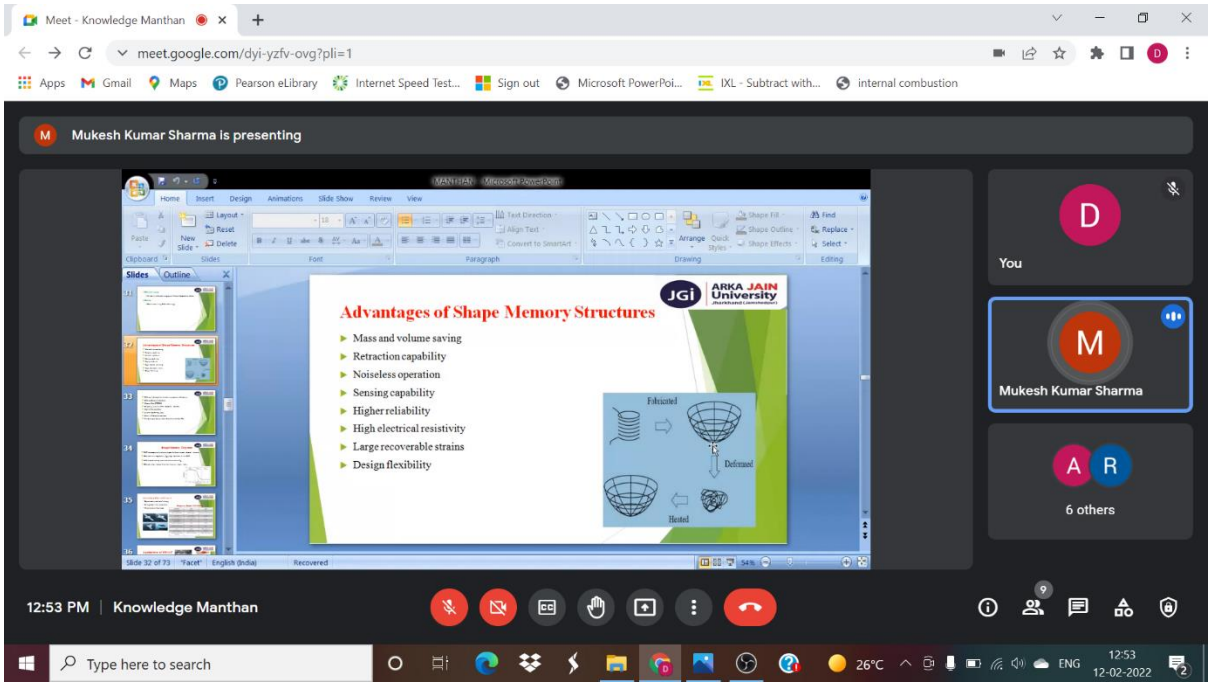
Meet - Knowledge Manthan
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internal combustion
Mukesh Kumar Sharma is presenting
Advantages of Shape Memory Structures
Mass and volume saving
Retraction capability
Noiseless operation
Sensing capability
Higher reliability
High electrical resistivity
Large recoverable strains
Design flexibility
Fabricated
Deformed
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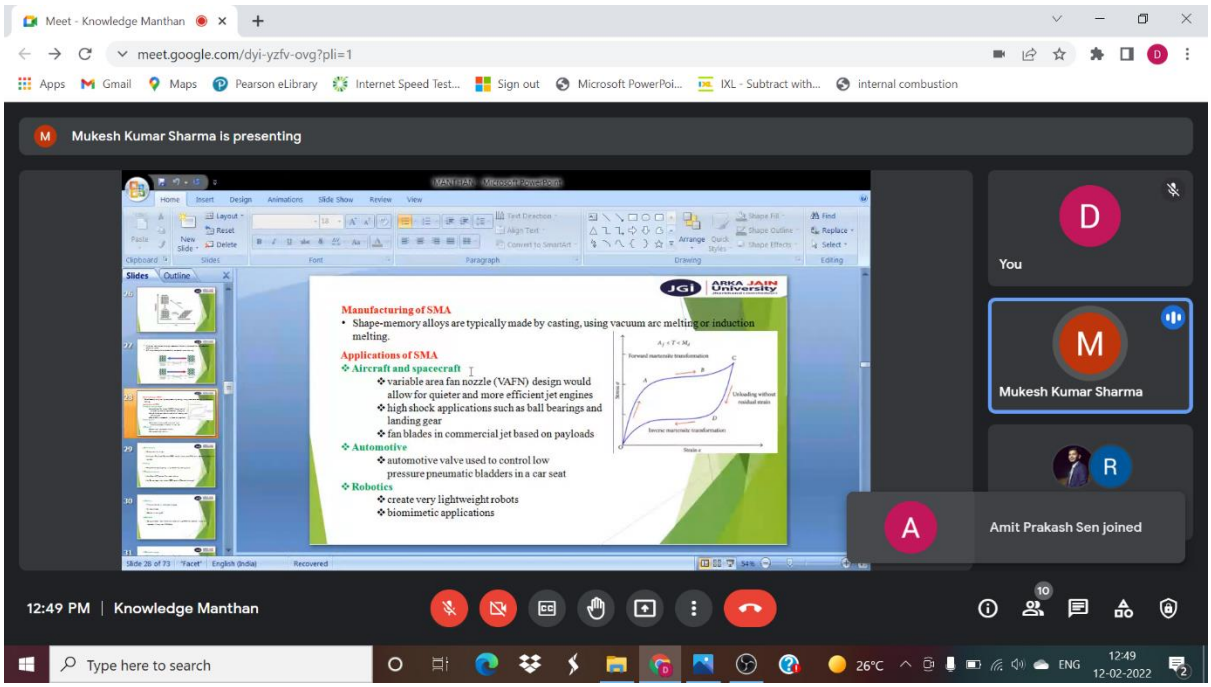
Meet - Knowledge Manthan
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internal combustion
Mukesh Kumar Sharma is presenting
Manufacturing of SMA
Shape-memory alloys are typically made by casting, using vacuum arc melting or induction melting.
Applications of SMA
Aircraft and spacecraft
variable area fan nozzle (VAFN) design would allow for quieter and more efficient jet engines
high shock applications such as ball bearings and landing gear
fan blades in commercial jet based on payloads
Automotive
automotive valve used to control low pressure pneumatic bladders in a car seat
Robotics
create very lightweight robots
biomimetic applications
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Mukesh Kumar Sharma
Amit Prakash Sen joined
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