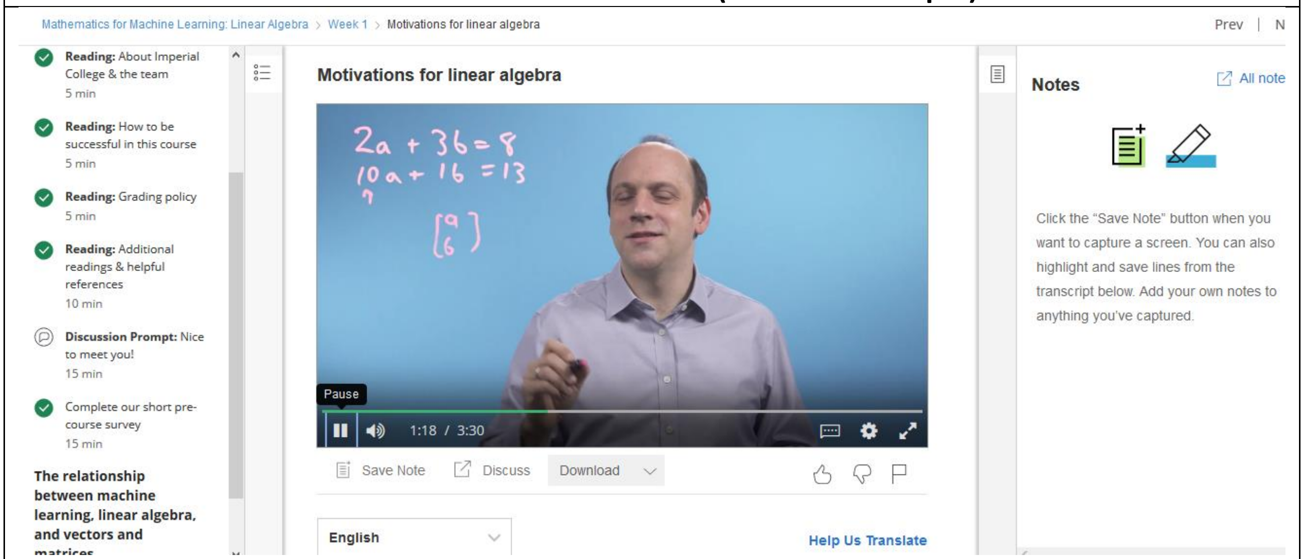
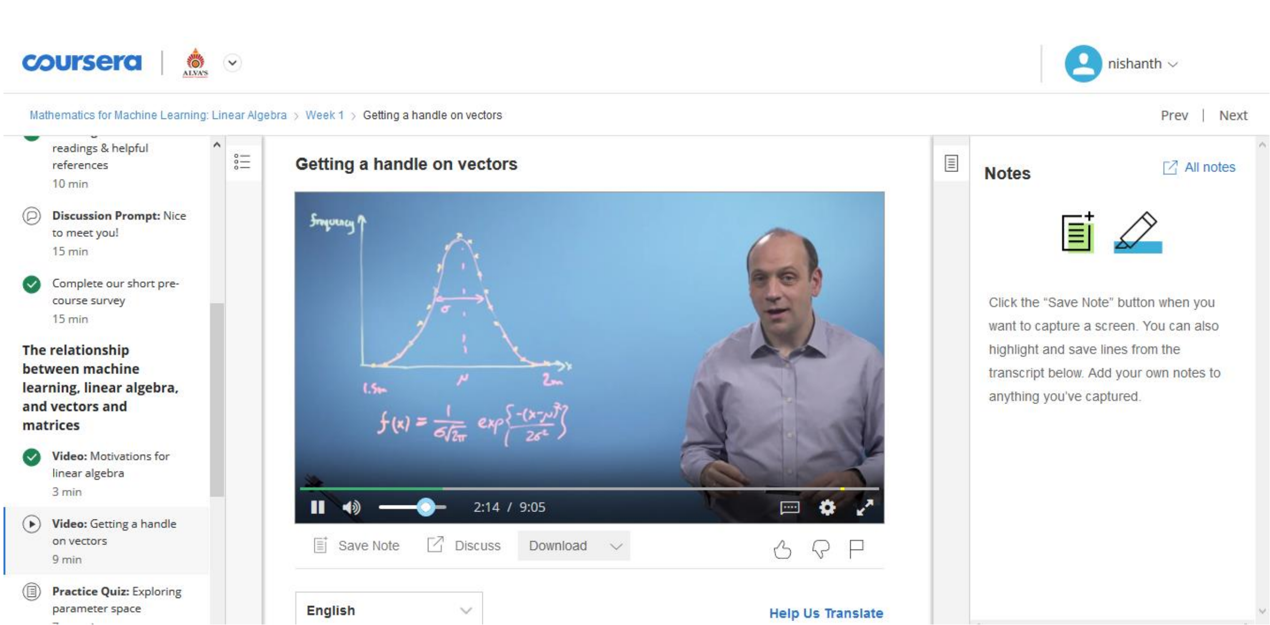
DAILY ASSESSMENT FORMAT

Date:	**13-07-2020**	**Name:**	**Nishanth v r**
Course:	Coursera	**USN:**	**4AL17EC063**
Topic:	**Mathematics for Machine Learning: Linear Algebra**	**Semester & Section:**	**6th b**
Github Repository:	**nishanthvr**		

FORENOON SESSION DETAILS(9.00am to 1.00pm)





Cosine and Dot product :

Algebraically, the **dot product** is the sum of the **products** of the corresponding entries of the two sequences of numbers. Geometrically, it is the **product** of the Euclidean magnitudes of the two vectors and the **cosine** of the angle between them.

In mathematics, the dot product or scalar product is an algebraic operation that takes two equal-length sequences of numbers and returns a single number.

These definitions are equivalent when using Cartesian coordinates. In modern geometry, Euclidean spaces are often defined by using vector spaces. In this case, the dot product is used for defining lengths (the length of a vector is the square root of the dot product of the vector by itself) and angles (the cosine of the angle of two vectors is the quotient of their dot product by the product of their lengths).

The dot product may be defined algebraically or geometrically. The geometric definition is based on the notions of angle and distance (magnitude of vectors). The equivalence of these two definitions relies on having a Cartesian coordinate system for Euclidean space.

In modern presentations of Euclidean geometry, the points of space are defined in terms of their Cartesian coordinates, and Euclidean space itself is commonly identified with the real coordinate space $\mathbf{R}^n$. In such a presentation, the notions of length and angles are defined by means of the dot product. The length of a vector is defined as the square root of the dot product of the vector by itself, and the cosine of the (non oriented) angle of two vectors of length one is defined as their dot product. So the equivalence of the two definitions of the dot product is a part of the equivalence of the classical and the modern formulations of Euclidean geometry.

The distance is covered along one axis or in the direction of force and there is no need of perpendicular axis or sin theta. In cross **product** the angle between must be greater than 0 and less than 180 degree it is max at 90 degree. ... That's why we use **cos** theta for **dot product** and sin theta for cross **product**.

Proof of the **Law of Cosines**. The easiest way to prove this is by using the concepts of **vector** and **dot product**. In general the **dot product** of two vectors is the **product** of the lengths of their line segments times the **cosine** of the angle between them.

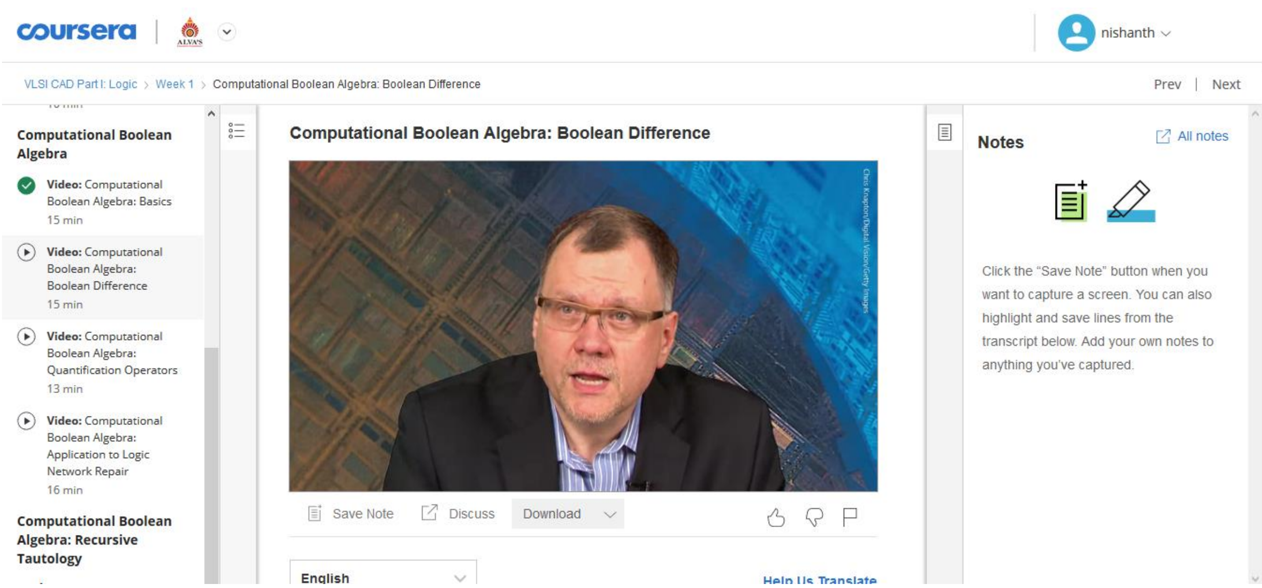
An important use of the **dot product** is to test whether or not two vectors are orthogonal. Two vectors are orthogonal if the angle between them is 90 degrees. ... Thus, two non-zero vectors have **dot product** zero if and only if they are orthogonal.

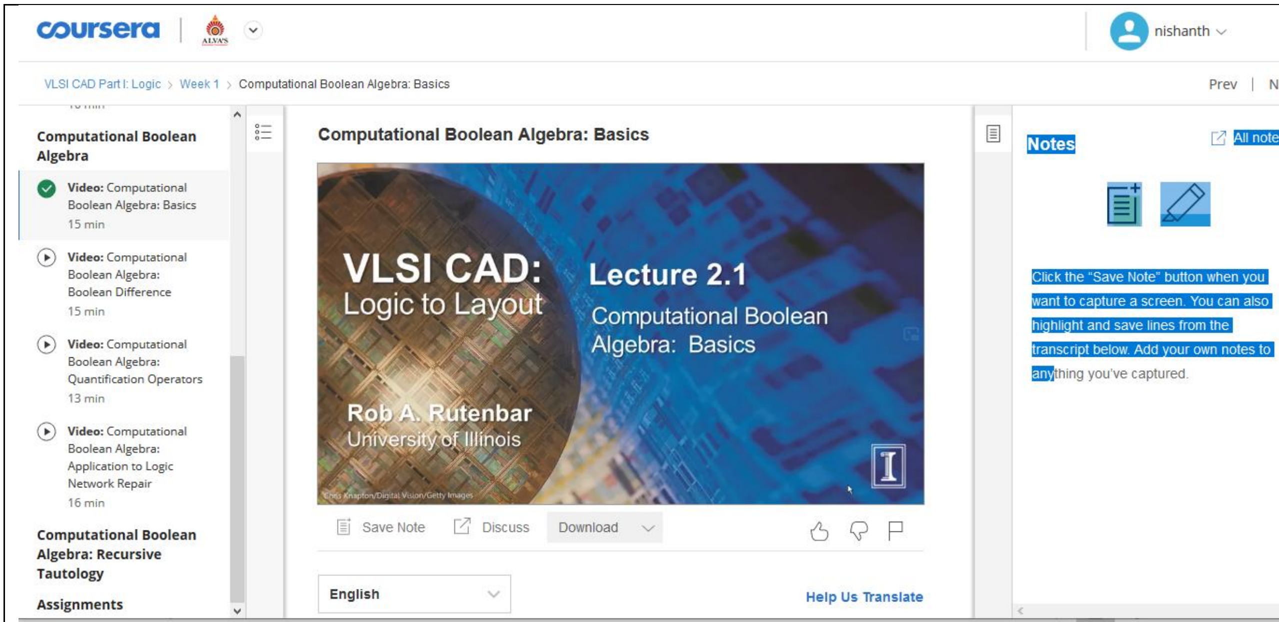
Dot products are very geometrical objects. They actually encode relative information about vectors, specifically they tell us "how much" one vector is in the direction of another. Particularly, the **dot product** can tell us if two vectors are (anti)parallel or if they are perpendicular.

A **dot product** of two vectors is the **product** of their lengths times the cosine of the angle between them. If the **dot product** is **0**, then either the length of one or both is **0**, or the angle between them is 90 degrees.

The **dot product** as **projection**. The **dot product** of the vectors a (in blue) and b (in green), when divided by the magnitude of b, is the **projection** of a onto b.

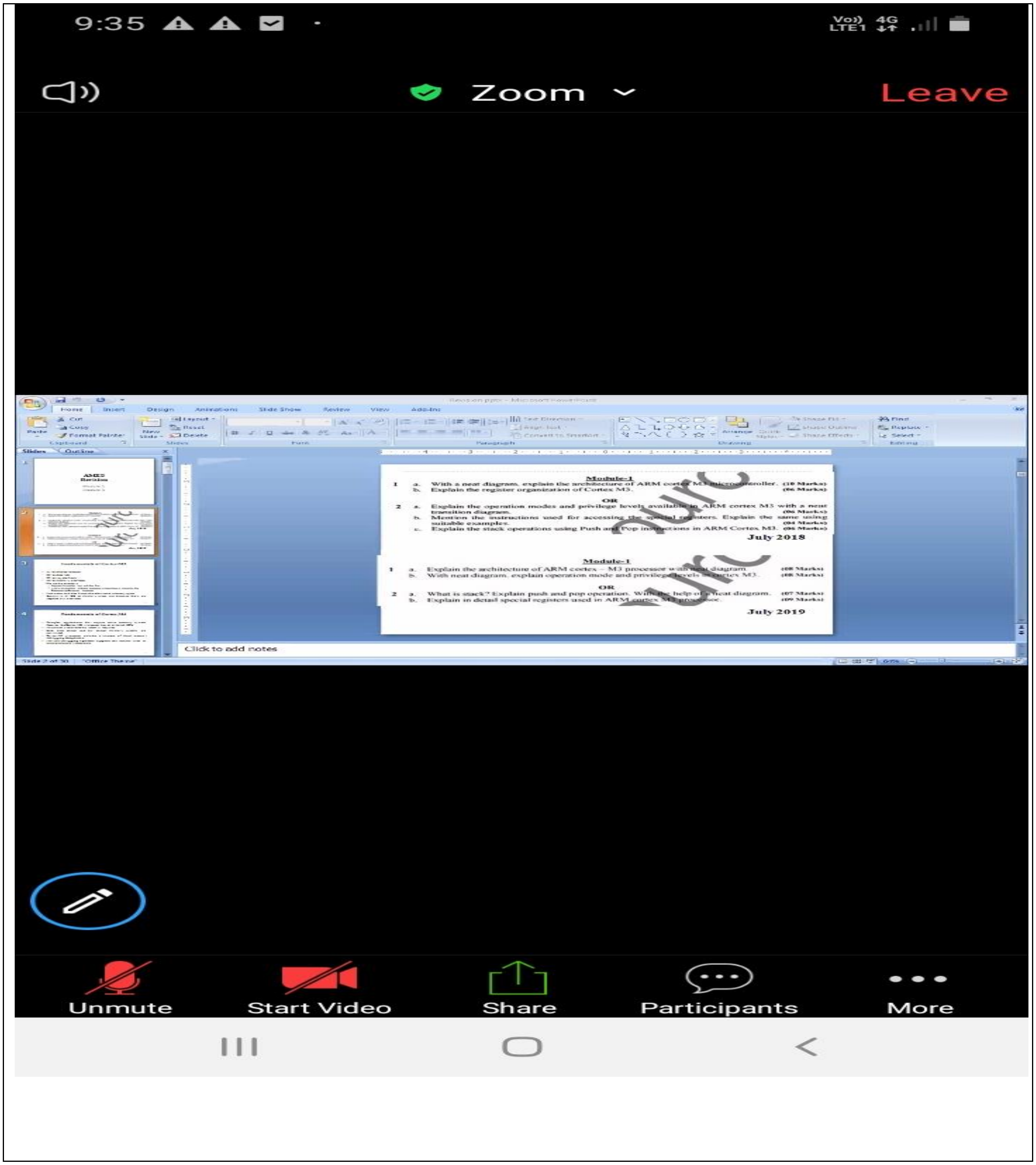
Date:	**13-07-2020**	**Name:**	**Nishanth v r**
Course:	**Coursera**	**USN:**	**4AL17EC063**
Topic:	**Vlsi cad 1**	**Semester & Section:**	**6th b**
Github Repository:	**Nishanthvr**		



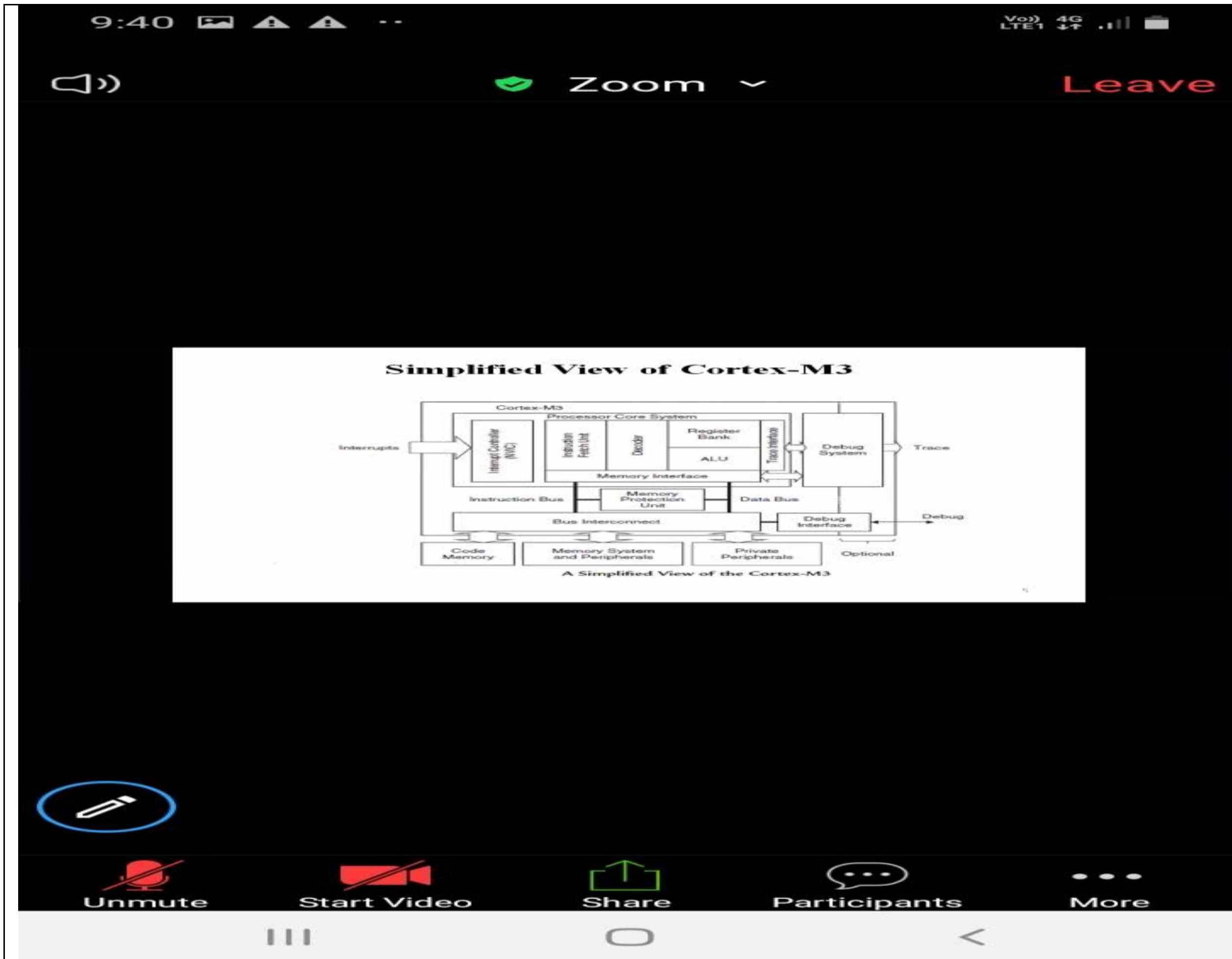


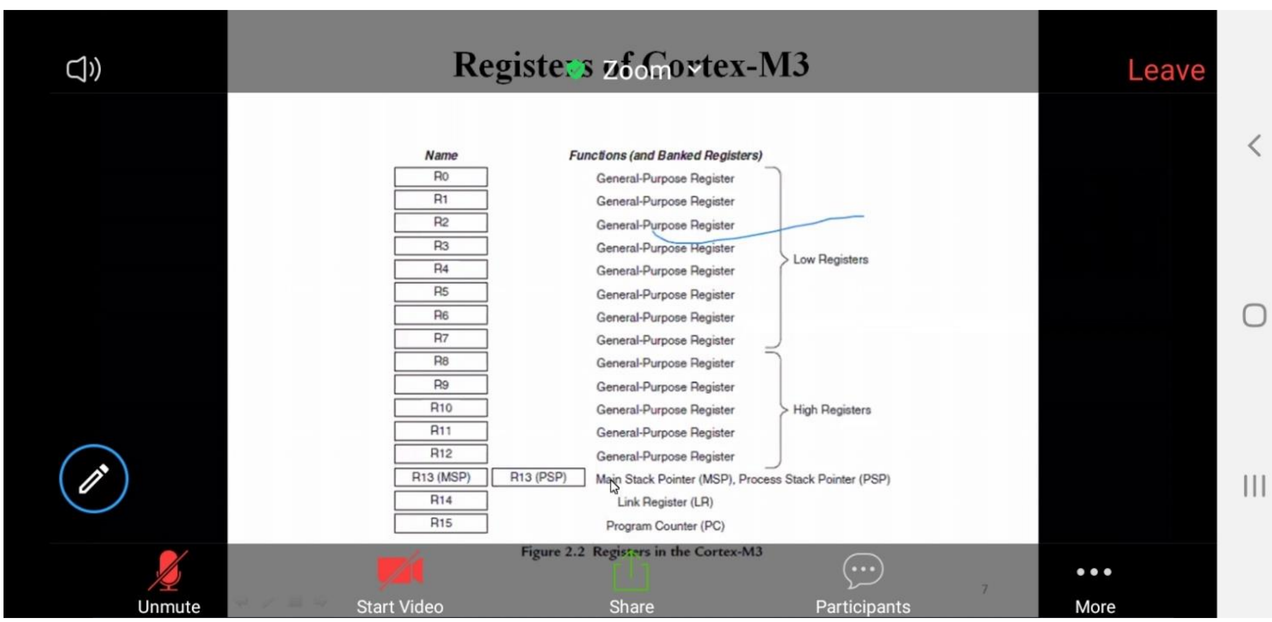
Boolean algebra is the branch of algebra in which the values of the variables are the truth values *true* and *false*, usually denoted 1 and 0 respectively. Instead elementart variables where the values of the variables are numbers, and the prime operations are addition and multiplication, the main operations of Boolean algebra are th(*or)* denoted as ∨, and the negation (*not)* denoted as ¬. It is thus a formalism for logical operation in the same way that elementary algebra describes numerical operations.

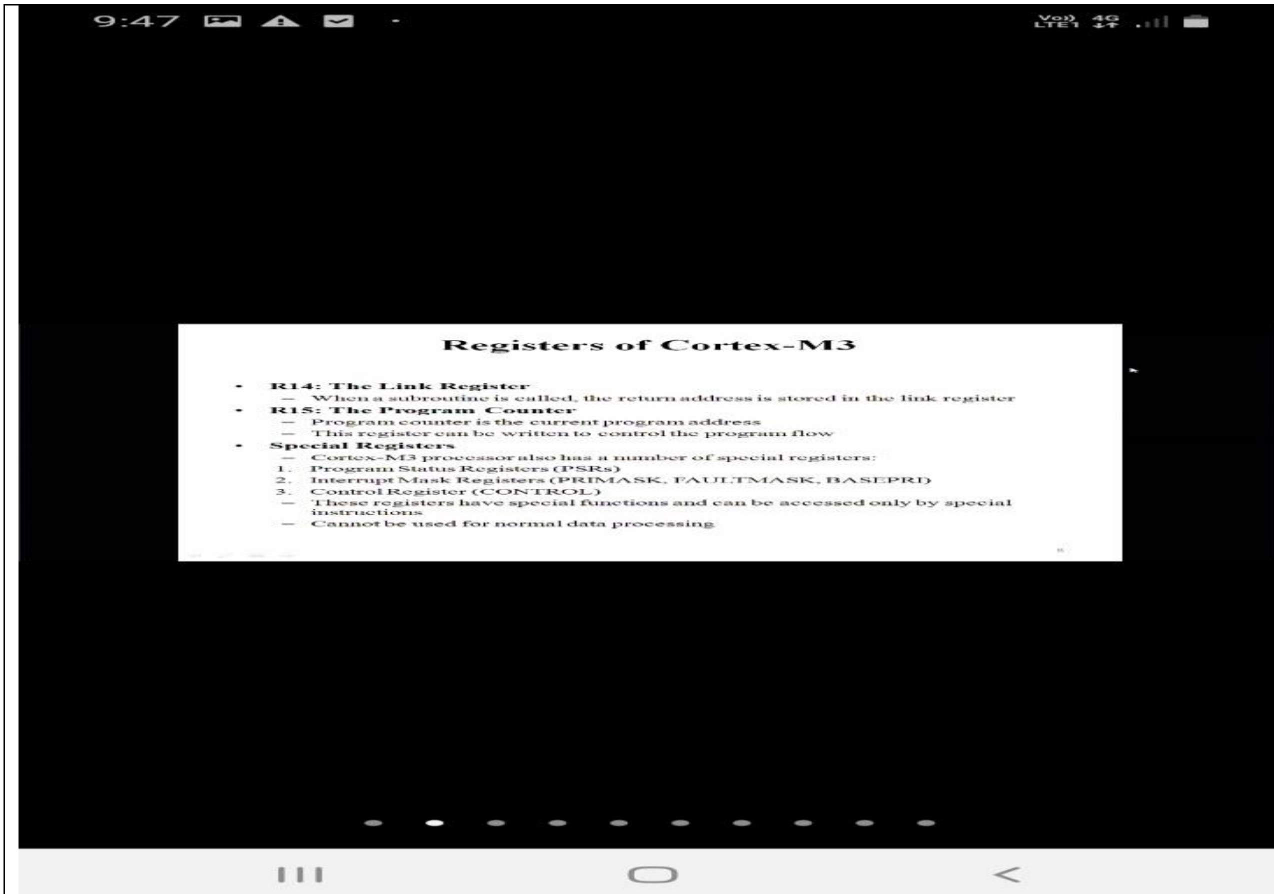
ARM Microcontroller revision class



9:35
Zoom
Leave
Module-1
1 a. With a neat diagram, explain the architecture of ARM cortex M3 microcontroller. (10 Marks)
b. Explain the register organization of Cortex M3. (06 Marks)
OR
2 a. Explain the operation modes and privilege levels available in ARM cortex M3 with a neat transition diagram. (06 Marks)
b. Mention the instructions used for accessing the special registers. Explain the same using suitable examples. (04 Marks)
c. Explain the stack operations using Push and Pop instructions in ARM Cortex M3. (06 Marks)
July 2018
Module-1
1 a. Explain the architecture of ARM cortex – M3 processor with neat diagram. (08 Marks)
b. With neat diagram, explain operation mode and privilege levels in cortex M3. (08 Marks)
OR
2 a. What is stack? Explain push and pop operation. With the help of a neat diagram. (07 Marks)
b. Explain in detail special registers used in ARM cortex M3 processor. (09 Marks)
July 2019
Click to add notes
Unmute
Start Video
Share
Participants
More

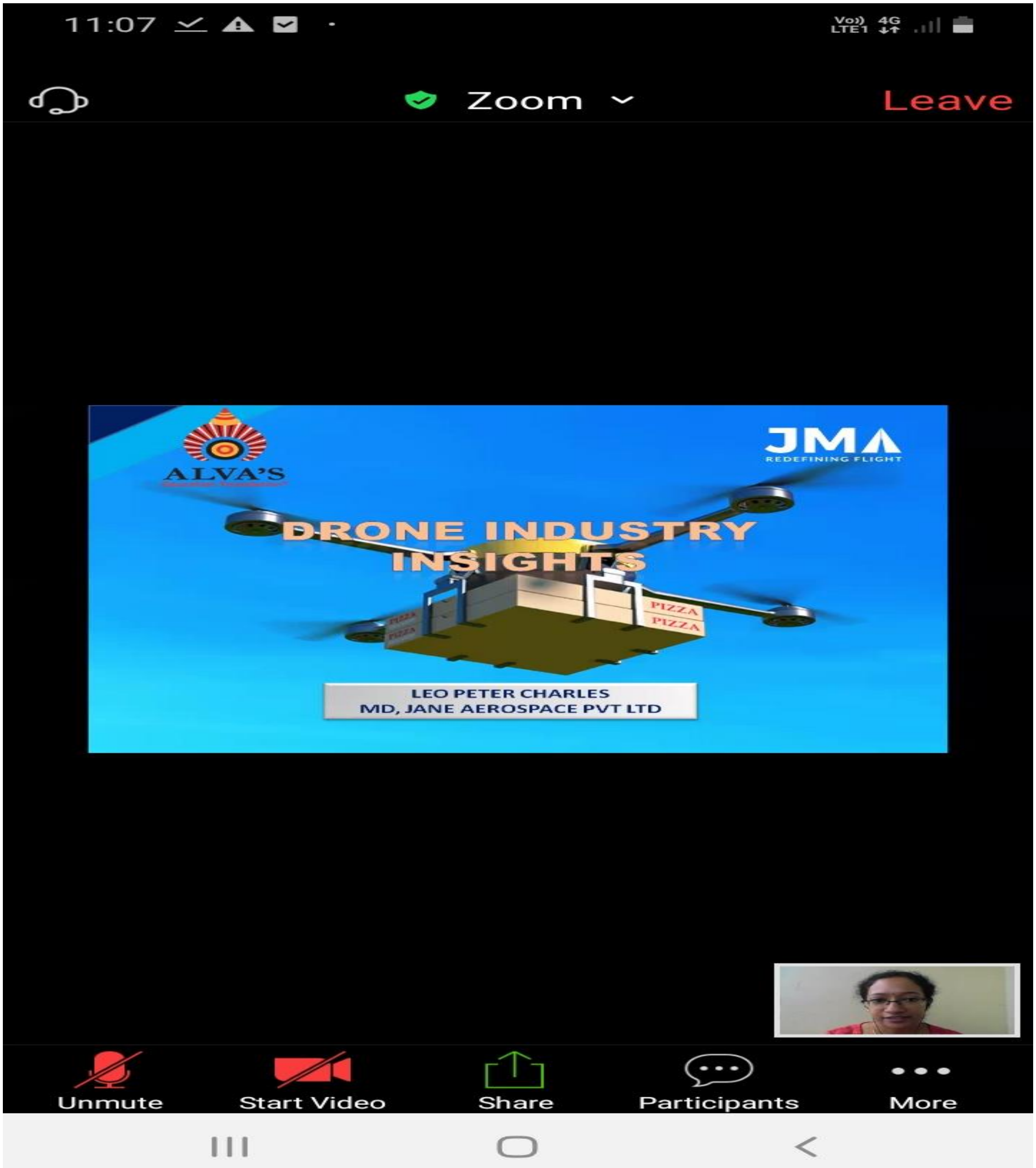

9:40
Zoom
Leave
Simplified View of Cortex-M3
Cortex-M3
Processor Core System
Interrupts
Interrupt Controller (NVIC)
Instruction Fetch Unit
Decoder
Register Bank
ALU
Trace Interface
Memory Interface
Debug System
Trace
Instruction Bus
Memory Protection Unit
Data Bus
Bus Interconnect
Debug Interface
Debug
Code Memory
Memory System and Peripherals
Private Peripherals
Optional
A Simplified View of the Cortex-M3
Unmute
Start Video
Share
Participants
More


Registers of Cortex-M3
Zoom
Leave
Name
Functions (and Banked Registers)
R0
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13 (MSP)
R13 (PSP)
R14
R15
General-Purpose Register
Low Registers
High Registers
Main Stack Pointer (MSP), Process Stack Pointer (PSP)
Link Register (LR)
Program Counter (PC)
Figure 2.2 Registers in the Cortex-M3
Unmute
Start Video
Share
Participants
More

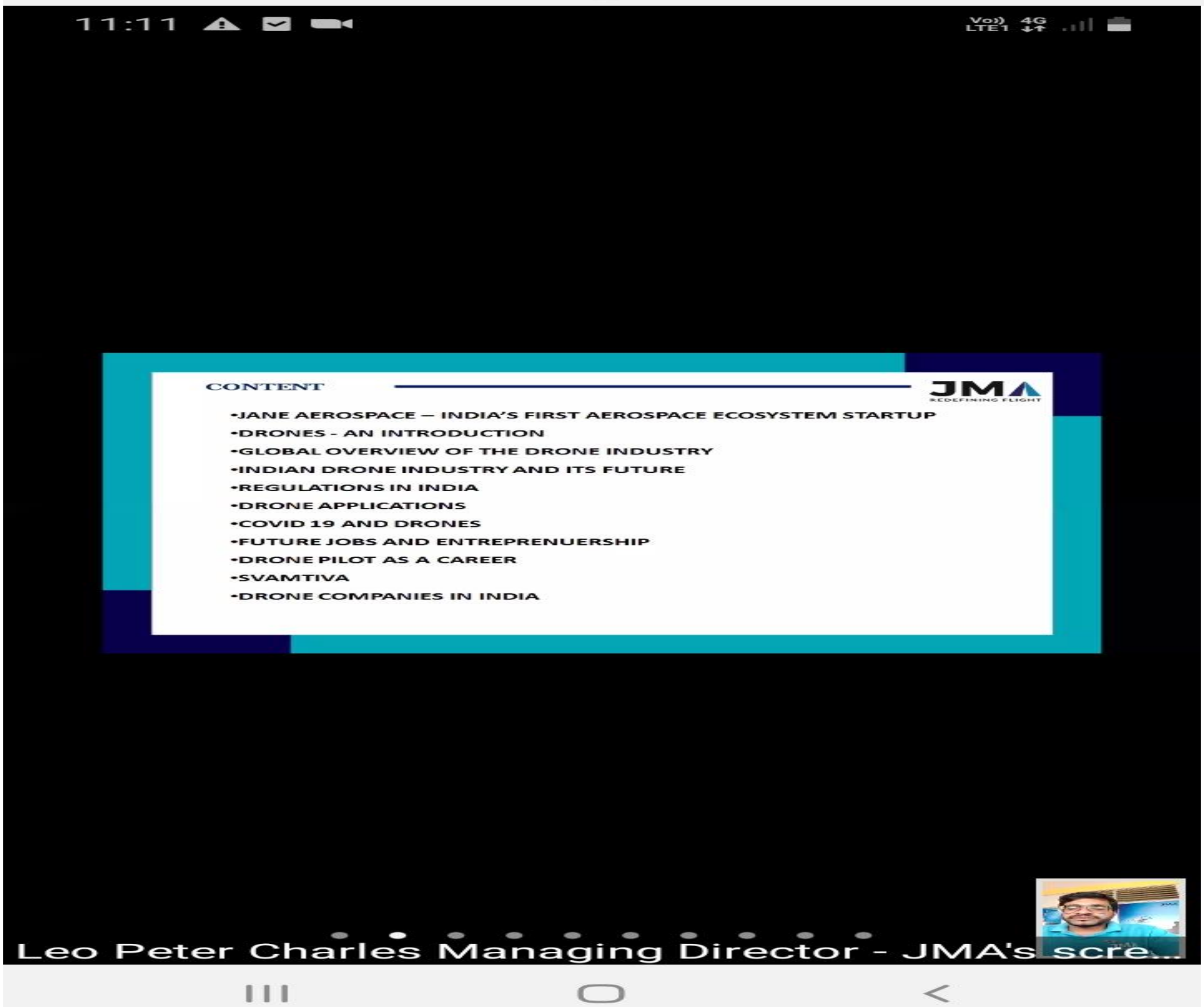

9:47
Registers of Cortex-M3
• R14: The Link Register
– When a subroutine is called, the return address is stored in the link register
• R15: The Program Counter
– Program counter is the current program address
– This register can be written to control the program flow
• Special Registers
– Cortex-M3 processor also has a number of special registers:
1. Program Status Registers (PSRs)
2. Interrupt Mask Registers (PRIMASK, FAULTMASK, BASEPRI)
3. Control Register (CONTROL)
– These registers have special functions and can be accessed only by special instructions
– Cannot be used for normal data processing


10:09
Zoom
Leave
Control register
• The Control register is used to define the privilege level and the stack pointer selection
• This register has two bits
Table 3.3 Cortex-M3 CONTROL Register
Bit | Function
CONTROL[1] | Stack status: 1 — Alternate stack is used 0 — Default stack (MSP) is used If it is in the Thread or base level, the alternate stack is the PSP. There is no alternate stack for handler mode, so this bit must be zero when the processor is in handler mode.
CONTROL[0] | 0 — Privileged in Thread mode 1 — User state in Thread mode If in handler mode (not Thread mode), the processor operates in privileged mode.
Unmute
Start Video
Share
Participants
More

WEBINAR ON A TOPIC DRONE INDUSTRY INSIGHTS HELD BY Mr. Leo Peter Charles ON MONDAY , 13 JULY 2020




11:11
JMA
REDEFINING FLIGHT
Leo Peter Charles Managing Director - JMA's scre...


11:11
CONTENT
JMA
REDEFINING FLIGHT
•JANE AEROSPACE – INDIA'S FIRST AEROSPACE ECOSYSTEM STARTUP
•DRONES - AN INTRODUCTION
•GLOBAL OVERVIEW OF THE DRONE INDUSTRY
•INDIAN DRONE INDUSTRY AND ITS FUTURE
•REGULATIONS IN INDIA
•DRONE APPLICATIONS
•COVID 19 AND DRONES
•FUTURE JOBS AND ENTREPRENUERSHIP
•DRONE PILOT AS A CAREER
•SVAMTIVA
•DRONE COMPANIES IN INDIA
Leo Peter Charles Managing Director - JMA's scre...

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGG.

ALVA'S Education Foundation

Certificate

OF PARTICIPATION

THIS IS TO CERTIFY THAT

Nishantha v r

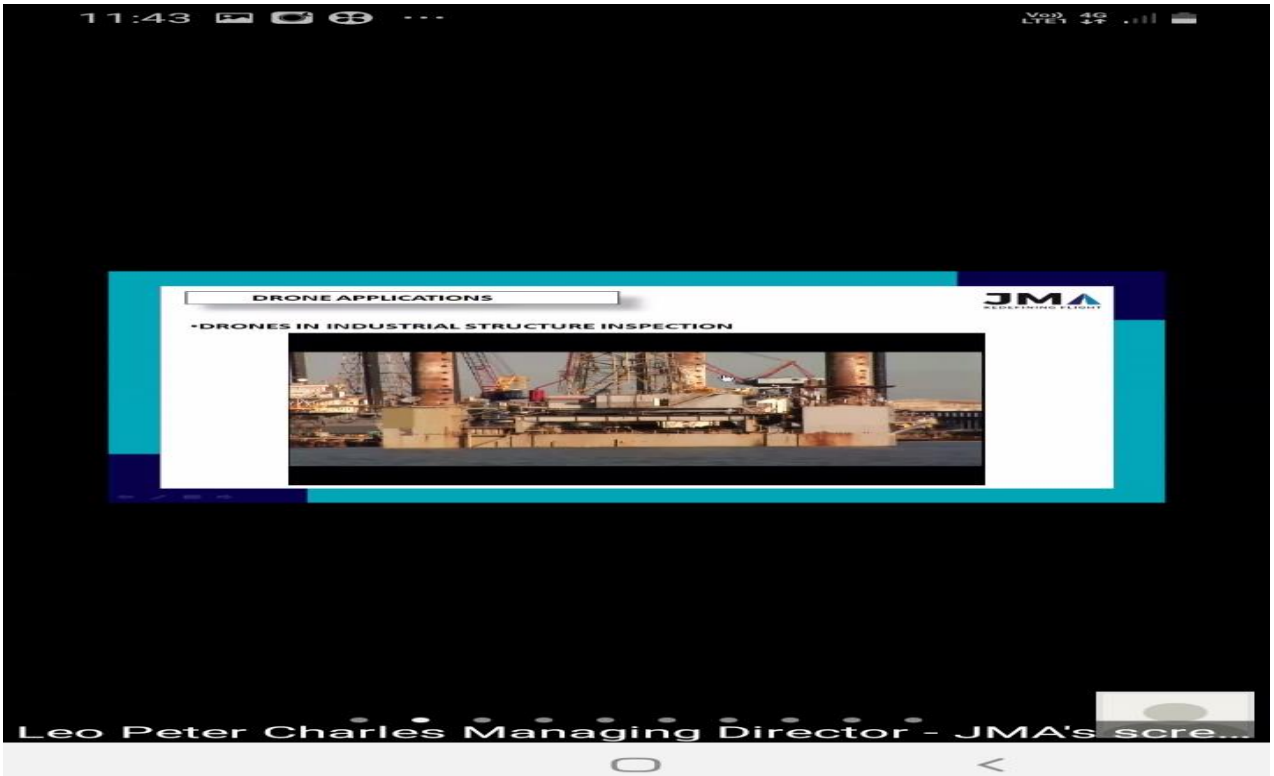
from Alvas institution of engineering and technology has participated in the webinar on "**DRONE INDUSTRY INSIGHTS**" held on **13 JULY 2020** as part of the webinar series on **"Future Ahead for Electronics Engineers"**

Mr. Leo Peter Charles
Managing Director
Jane Aerospace Pvt Ltd

Dr. D V Manjunatha
Professor and Head
Dept. of ECE, AIET

Dr. Peter Fernandes
Principal
AIET

11:17


11:43
DRONE APPLICATIONS
JMA
REDEFINING FLIGHT
•DRONES IN INDUSTRIAL STRUCTURE INSPECTION
Leo Peter Charles Managing Director - JMA's scre...