TEACHERS READINESS PROGRAMME [ROBOTICS AND AI]

Venue: Council for the Indian School Certificate Examinations
Centre of Excellence (COE), Hyderabad
Technology Innovation Hub of IIT Delhi (IHFC)
Resource Personnel: Dr. Venkat Bokka, Ms. Mrinmoyee Choudhuri
Date: 10th June, 2024 – 14th June , 2024

Schedule of the Training Programme for Group 1 and Group 2

	Day 1	Day 2	Day 3	Day 4	Day 5
Session 1	Orientation	Theory - Robotics	Theory - Robotics	Theory - AI	Theory - AI
9:00-11:00 AM	Introduction to Sessions	Concepts in Robotics	Sensors	Introduction to Python:	Machine Learning - Turing Test
	Projects allotment	Types of Motion, Links and Joints	Actuators	Data: Types, Variables, Operators	Cyber Security
		Degree of freedom		List, Tuples, Dictionaries	Components of AI Project Framework
11:00 - 11.15 AM	**TEA BREAK**				
Session 2	Theory - Robotics	Practical - Robotics	Practical - Robotics	Practical - AI	Practical - AI
11:15 -1:15 PM	Introduction to Robotics	Sensitization with Basic Robotics	Integration of Robot	Python Programming on List, Tuples and Dictionaries	Python Programming using Pandas, Plotting Bar graphs
	Laws of Robotics, Classification	Kit Based Activity			
1:15 PM-2:15 PM	**LUNCH**				
Session 3	Theory - Robotics	Theory - Robotics	Theory - AI	Theory - AI	Presentation
2:15- 4:15 PM	Applications of Robotics	Gears	Define AI	AI Concepts	Presentation and Demo by all participants
	Building Blocks of Robots	Understanding Microcontroller	Brief History	Components and Stages of AI	
	Identification of Robots		AI Ethics	Modules & Packages	
4:15 - 4:30 PM	**TEA BREAK**				
Session 4	Practical - Robotics	Practical - Robotics	Practical - AI	Practical - AI	Presentation
4:30-6:30 PM	Practical - Tinkercad - LED Blinking	Projects using Sensors	Basic Programming on Python	Python Programming using Matplotlib, Numpy	Presentation and Demo by all participants

Projects handled during Training Period :

1. Flash Light Project

2. Quiz Buzzer Project

3. Automatic Street light

4. Burglar Alarm

5. Magic Motor

6. Water ATM

7. Smart Door (Closes at Night Automatically)

8. Controlling the Intensity of Sound using Dimmer

9. Water Tank Filling Alarm

Final Project Topic: DISHARI (Smart Blind Stick)

Objectives and scope of the Project

A smart stick concept is devised to provide a smart electronic aid for blind people.

Blind and visually impaired find difficulties in detecting obstacles during walking in the street. The system is intended to provide artificial vision and object detection, real time assistance via making use of Arduino UNO. The main objective of our project is to provide a sound -based assistance to blind people. The existing devices for the visually impaired only focus on travelling from one location to another. The device is aimed to help visually impaired with the same moreover as that of sighted people. A brief study had been carried out to understand various issues related to the project which involves providing a smart electronic aid for blind people to provide artificial vision and object

detection, Our project mainly focuses on the visually impaired people who cannot walk independently environment.

The system consists of ultrasonic sensors, and the feedback is recieve through audio.

The aim of the overall system is to provide a low cost and efficient navigation and obstacle detection aid for blind which gives which gives a sense of artificial by providing information about the environmental scenario of static and dynamic object round them, so that they can walk independently.

FUTURE SCOPE OF THE PROJECT :

Real assistance via GPS module by using Arduino Uno.

In future, we will be modifying the proposed model in better way. Initiating with the addition of Bluetooth module for proper on and off functioning.

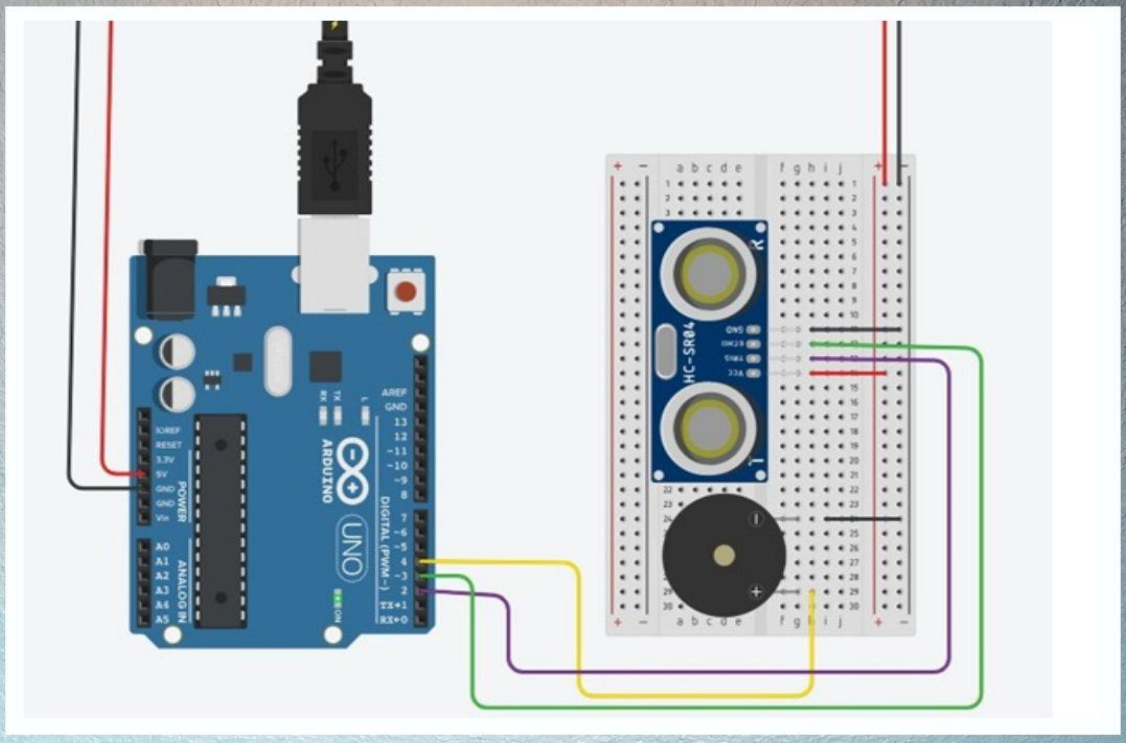
Integration of GPS module for detecting location of user, in case of an emergency. GPS module will be integrated in combination of Bluetooth Module of Arduino UNO connecting it to the mobile phone for better and smooth location detection.

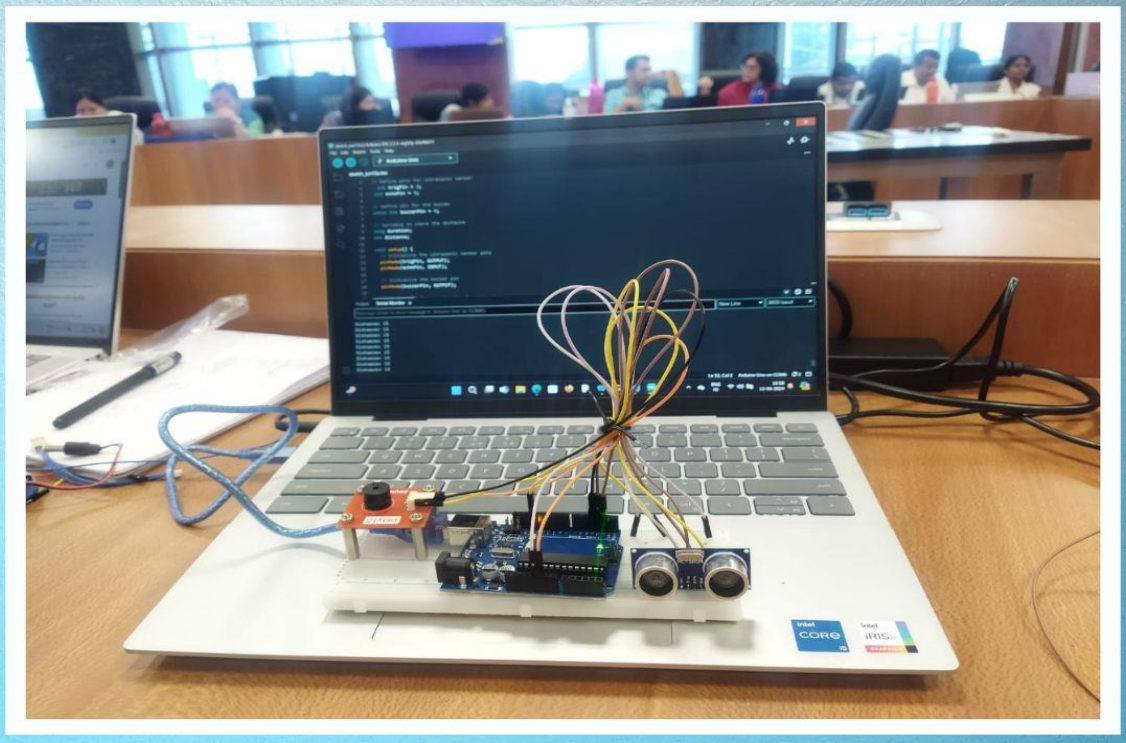
Besides, soil moisture detector can be implemented for detecting the amount of moisture in the soil, providing the safer access of the path to the user.

At last, in order to improve the sound notification we are planning to implement sound module which will give instruction in voice form.

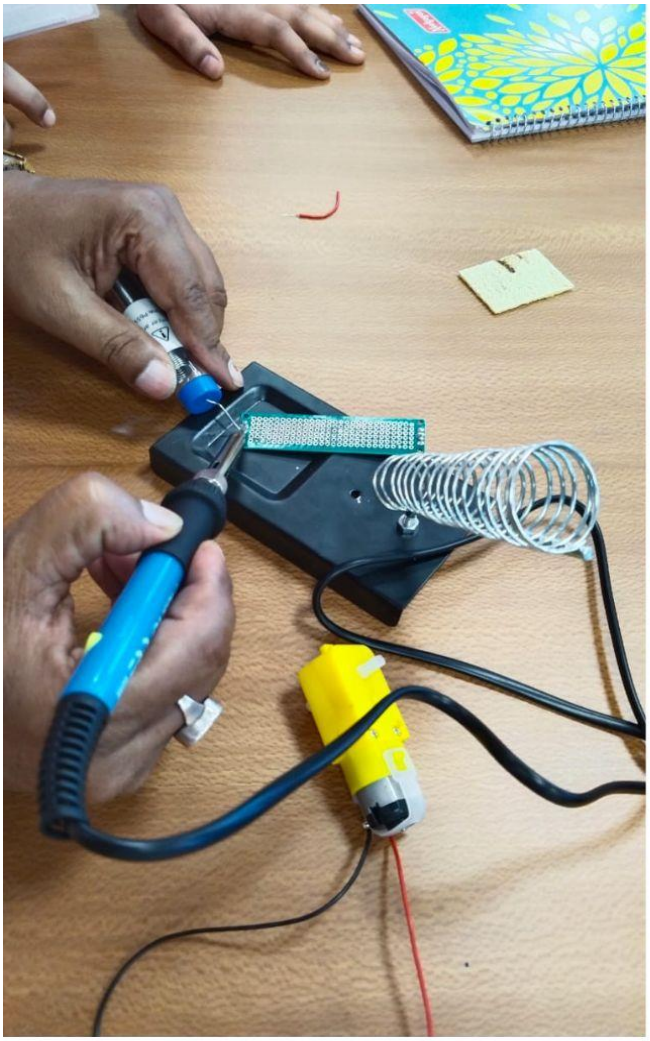
The stick system presented in the paper uses artificial intelligence along with various sensors in real time to help the visually disabled people to navigate their environment independently. Image recognition, collision detection and obstacle detection are the three tasks performed by the system.

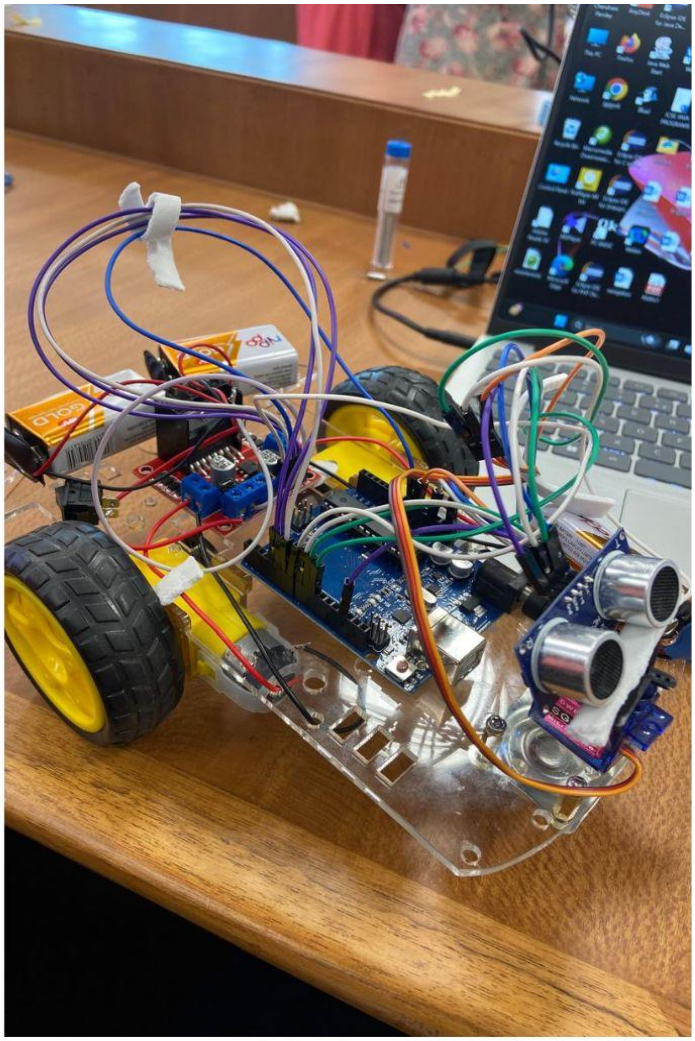
Circuit Diagram

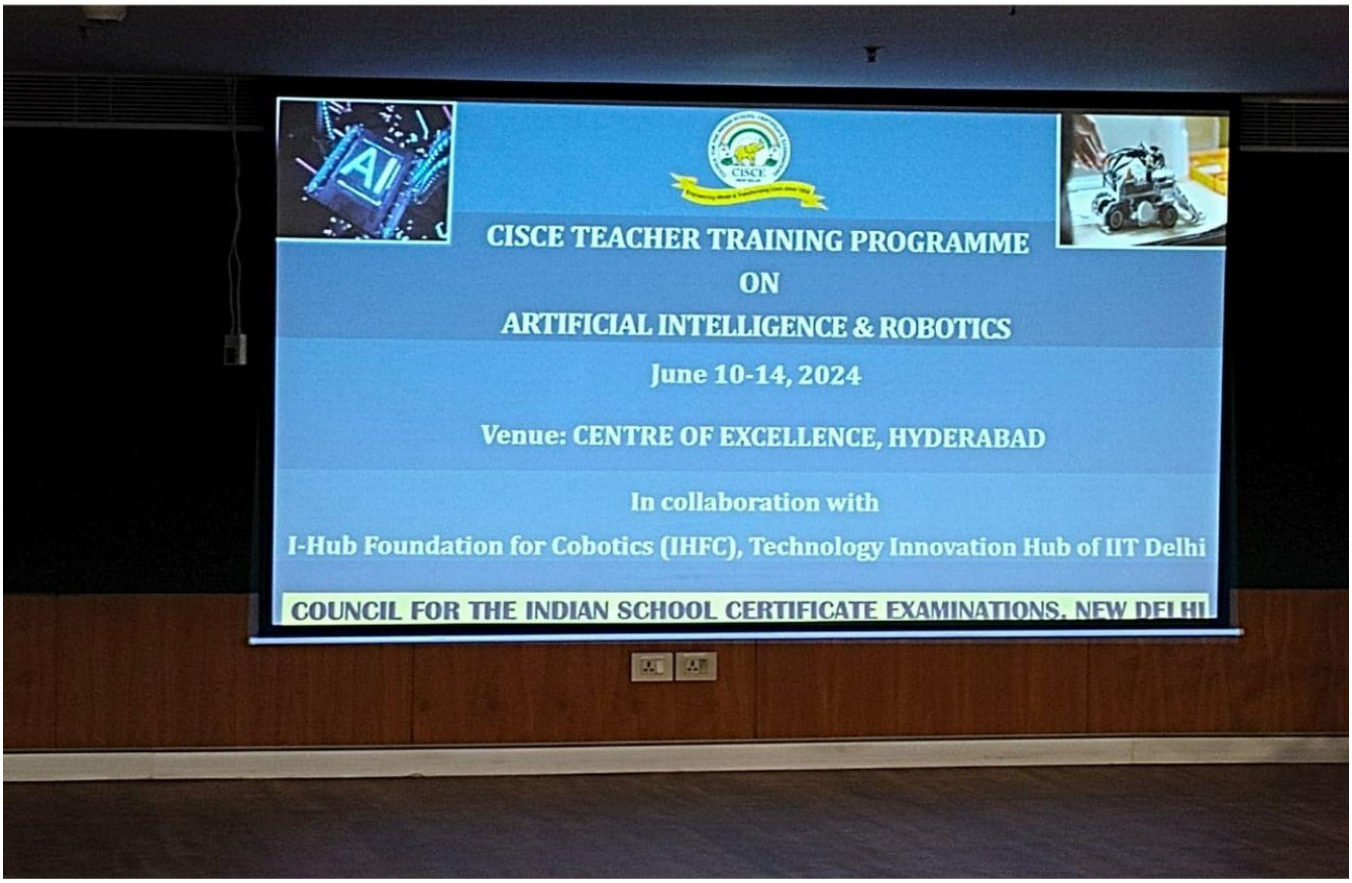




DISHARI (Smart Blind Stick)






AI
CISCE
CISCE TEACHER TRAINING PROGRAMME
ON
ARTIFICIAL INTELLIGENCE & ROBOTICS
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In collaboration with
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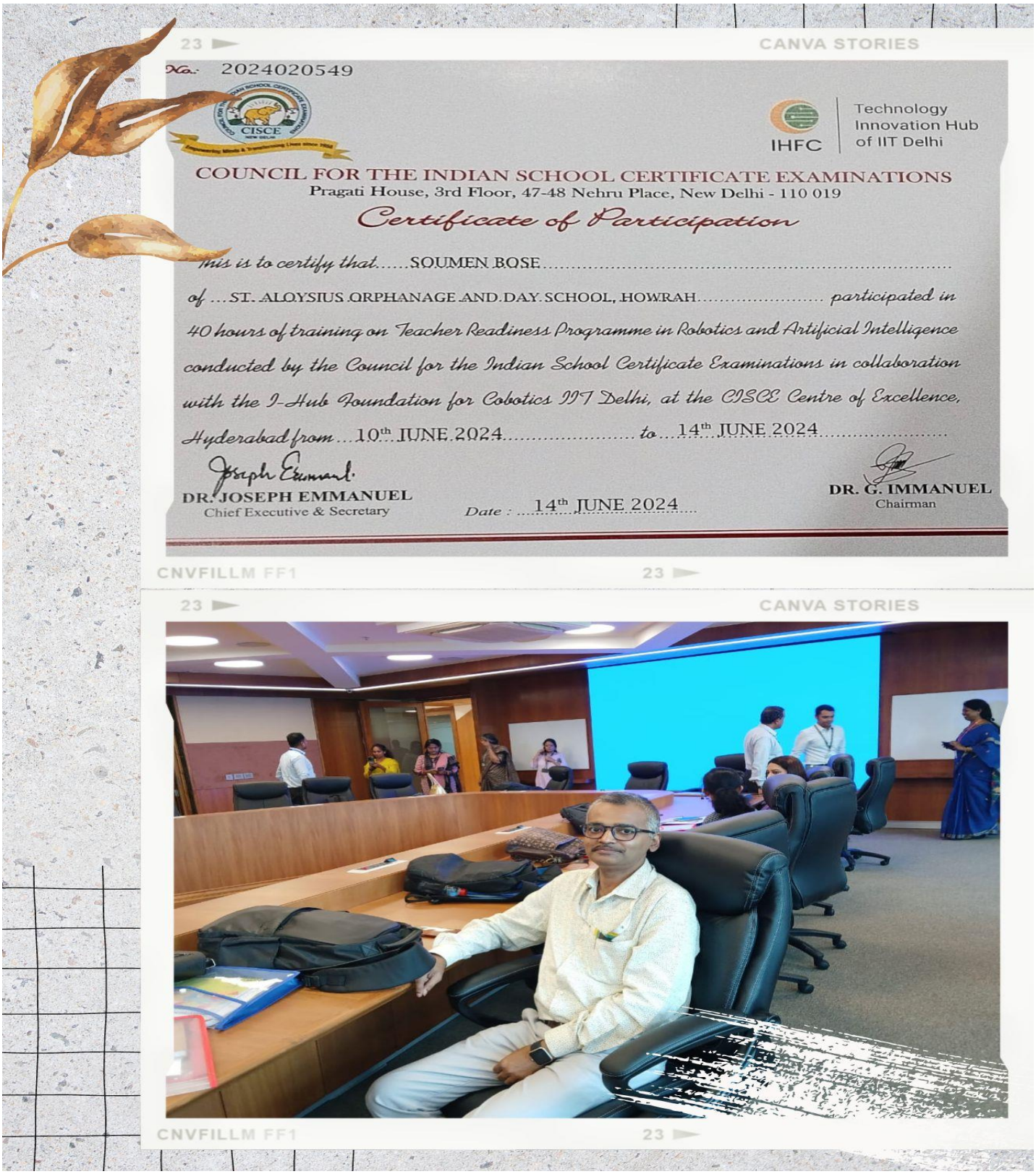
COUNCIL FOR THE INDIAN SCHOOL CERTIFICATE EXAMINATIONS, NEW DELHI



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