



**Final Year Project Enrolment (SPRING 25)**  
Kickoff Report (KOR)

Semester 6

Project Title	Submission Date
Two-Layer Contactless Physical Authentication System: Combining Facial & Voice Recognition	04-06-2025

Abstract
<p>Traditional authentication methods like passwords, PINs, and tokens are increasingly insecure, vulnerable to phishing and theft. Since COVID-19, their reliance on physical contact has also made them unhygienic, posing health risks. These drawbacks highlight the need for a secure, touch-free alternative that meets modern safety and security demands.</p> <p>This project presents a Two-Layer Contactless Physical Authentication System using facial and voice recognition. The facial recognition layer leverages an InceptionResnetV1 model, based on the FaceNet framework, which generates unique 512-dimensional facial embeddings for highly discriminative identity detection. This is then fused with voice recognition for robust verification. Built as a minimum viable product (MVP) on compact embedded hardware, it's portable, cost-effective, and adaptable for applications like access control, attendance tracking, and secure entry across settings such as offices and schools.</p> <p>With real-time processing, robust anti-spoofing measures, and fully contactless operation, the system enhances hygiene and security. Its advanced dual biometric design outperforms generic single-factor methods, offering uniquely reliable protection and user convenience. This solution is ideal for widespread, practical deployment in today's environments.</p>

Group Members:

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Supervisor(s) Detail:

	Name	Designation	Mobile No.	Email	Signature
Supervisor	Dr Zaid Ahmad	Lecturer	03164307287	zaidahmad@cuilahore.edu.pk	
Co-Supervisor (if any)	Engr. Talha Naveed	Embedded Systems Engineer	03069633925	talha@itvatesolutions.com	

Instructions

Handwritten forms  
Hard copies  
Soft copies

Handwritten forms will not be accepted. Type the name and registration number from student ID card. Submit the hard copies of these forms (signed Annexure I and II) to Mr. Ghulam Abbas in FYP Lab (B-Block). Send the soft copies of these forms (unsigned Annexure I and II) to Mr. Ghulam Abbas on his email address, [gabbas@cuilahore.edu.pk](mailto:gabbas@cuilahore.edu.pk)



**Final Year Project Enrolment (SPRING 25)**  
Project Accept and Reject Form

Semester 6

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Two-Layer Contactless Physical Authentication System: Combining Facial & Voice Recognition	04-06-2025

Industrial Collaboration:

Yes ☐

No ☒

Name of Funding Organization:

Enter the name of the funding agency

Area of Specialization:

Communication Networks/ Information Security	<input type="checkbox"/>	Embedded Systems/ Internet of Things	<input checked="" type="checkbox"/>
Digital Systems/Integrated Circuits Design	<input type="checkbox"/>	System Software Development	<input type="checkbox"/>
Artificial Intelligence/ Machine Learning	<input type="checkbox"/>	Application Software Development	<input type="checkbox"/>
Signal Processing/ Image Processing	<input type="checkbox"/>	Automation/ Robotics	<input type="checkbox"/>

UN Sustainable Development Goals:

SDG #	Goal		SDG #	Goal		SDG #	Goal	
1	No Poverty	<input type="checkbox"/>	7	Affordable and Clean Energy	<input type="checkbox"/>	13	Climate Action	<input type="checkbox"/>
2	Zero Hunger	<input type="checkbox"/>	8	Decent Work and Economic Growth	<input checked="" type="checkbox"/>	14	Life Below Water	<input type="checkbox"/>
3	Good Health and Well-Being	<input type="checkbox"/>	9	Industry, Innovation and Infrastructure	<input checked="" type="checkbox"/>	15	Life on land	<input type="checkbox"/>
4	Quality Education	<input type="checkbox"/>	10	Reduced Inequalities	<input type="checkbox"/>	16	Peace, Justice and Strong Institutions	<input type="checkbox"/>
5	Gender Education	<input type="checkbox"/>	11	Sustainable Cities and Communities	<input checked="" type="checkbox"/>	17	Partnership for the Goal	<input type="checkbox"/>
6	Clean Water and Sanitation	<input type="checkbox"/>	12	Responsible Consumption and Production	<input type="checkbox"/>	* You can mark multiple SDGs which are addressed in the FYP.		

\* You can mark multiple SDGs which are addressed in the FYP.

\* Note for supervisor(s): Kindly ensure at least one UN SDG is addressed in the FYP

Supervisor(s) Detail:

	Name	Email	Signature
Supervisor	Dr Zaid Ahmad	zaidahmad@cuilahore.edu.pk	
Co-Supervisor (if any)	Engr. Talha Naveed	talha@itvatesolutions.com	

Feedback

Comments (if any):

Signature of the Evaluator(s)