



## Department of Computer Science & Engineering and Information Technology

### Major Project Proposal (2024-25)

Group No.	36
-----------	----

1. **Project Title** (*mention your project title which clearly defines the purpose and scope of your work. Capitalize first and major words of your project title.*)

Authentication Using Behavioral Biometrics

2. **Team Members**

S. No.	Roll No.	Name	Mobile No.	Proficiency
1.	211435	Akshit Sharma	8988036095	Information Security
2.	211442	Simran	7807211976	Information Security

3. **Name of Supervisor (s)** (*mention the name and designation of your supervisor. If there is any co-supervisor, please mention the department as well.*)

Dr. Kushal Kanwar, Assistant Professor (SG)

4. **Work Distribution** (*clearly state the distribution of work among team members.*)

S. No.	Roll No.	Work Distribution
1.	211435	<ul style="list-style-type: none"><li>• Research &amp; Planning an approach to the project.</li><li>• Developing an application for generating a dataset for the project.</li><li>• Research outcome: Primary responsibility of the research paper.</li><li>• Documentation &amp; Final write-up.</li></ul>
2.	211442	<ul style="list-style-type: none"><li>• Research into methodologies of authentication using behaviour.</li><li>• Reviewing literature to set up the parameters for the project.</li><li>• Development of a Machine Learning Model for use in the project.</li><li>• Development of the final project prototype.</li></ul>



**5. Problem Statement** *(serves as a basis of your project and should comprise of max. 500 words spread over at least two paragraphs)*

In the world around us today, we see almost everyone engaged in their electronic gadgets, be it their smartphones, tablets, smartwatches, laptops or even their home desktops. Their use in our daily lives as humans is increasing day by day. With this increase, we are also able to notice a significant increase in security breaches, leading to losses, albeit financially or emotionally.

We have all heard the term ‘hacking’, but never fully understood it, while some easy steps on the customer’s part, and on the service provider’s part can substantially decrease the instances of ‘being hacked’. One of the major factors then comes into play – Authentication. Authentication refers to the verification that a particular authorized user is the one accessing his/her information, not anyone else pretending to be them. Basically, authentication is the process of proving someone is genuinely themselves, and not others. We are all familiar with the most common kinds of authentication – passwords. Another commonly available form of authentication would be pins – usually used in ATM’s.

Our project, ‘Authentication using Behavioral Biometrics’, aims to provide a seamless and non-intrusive form of second-factor authentication, improving both usability and security. The project aims to authenticate a user, that is, know if the user is really him/herself, using their human behavioral traits, such as the way one holds their mobile phone, or the way one types. The aim is to know a person by the way they interact with their device, since everyone interacts in a unique way. One may differ in the way they hold their phone, or in the pressure which they apply to the pen when they draw on a tablet. There are endless different options, using which we can verify a user. For the scope of this project, we have limited ourselves to a user using a mobile phone, and the techniques we will be using are the way one holds/moves their device, and the way in which they swipe on their phones.

This projects also aims to provide continuous authentication, that is, unlike a password which can be known once using social engineering (or other methods), it will continuously keep a check on the authenticity of a user, such that even in case of a snatch and grab, it can protect the actual user’s data.



**6. Main Objectives** (*mention at least three objectives*)

- 1) To develop an application to gather a user's natural behavioral information.
- 2) To develop and tailor a machine learning model to accurately identify a particular user.
- 3) To develop a prototype that implements the concept of the project.

**7. Resources Required** (*mention software, hardware, and other resources*)

Category	Description
Software Resources	-Nil-
Hardware Resources	-Nil-
Others	<ul style="list-style-type: none"><li>• Book: 'Behavioral Biometrics: A remote access approach by Kenneth Revett' Published by: Wiley ISBN: 9780470997932, 0470997931</li><li>• Access to paid research papers.</li></ul>

**8. Project Plan** (*please update the provided Gantt Chart according to your project work plan, breaking down the proposed work into phases and tasks along with their timelines for the entire academic year 2024-25.*)



Activity	Year 2024										Year 2025									
	Aug.		Sept.		Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Apr.		May	
Literature Review																				
Analysis and Requirements																				
Project Design and Architecture																				
Implementation: Data Collection App																				
Implementation: ML Model																				
Testing, Validation & Prototyping																				
Documentation and Write-up																				

**Signatures** (please also mention the name of team members and supervisor (s) with date)

Akshit Sharma (211435)

Simran (211442)

Dr. Kushal Kanwar  
 Assistant Professor (SG)

**Date of Submission:** 21 August 2024