

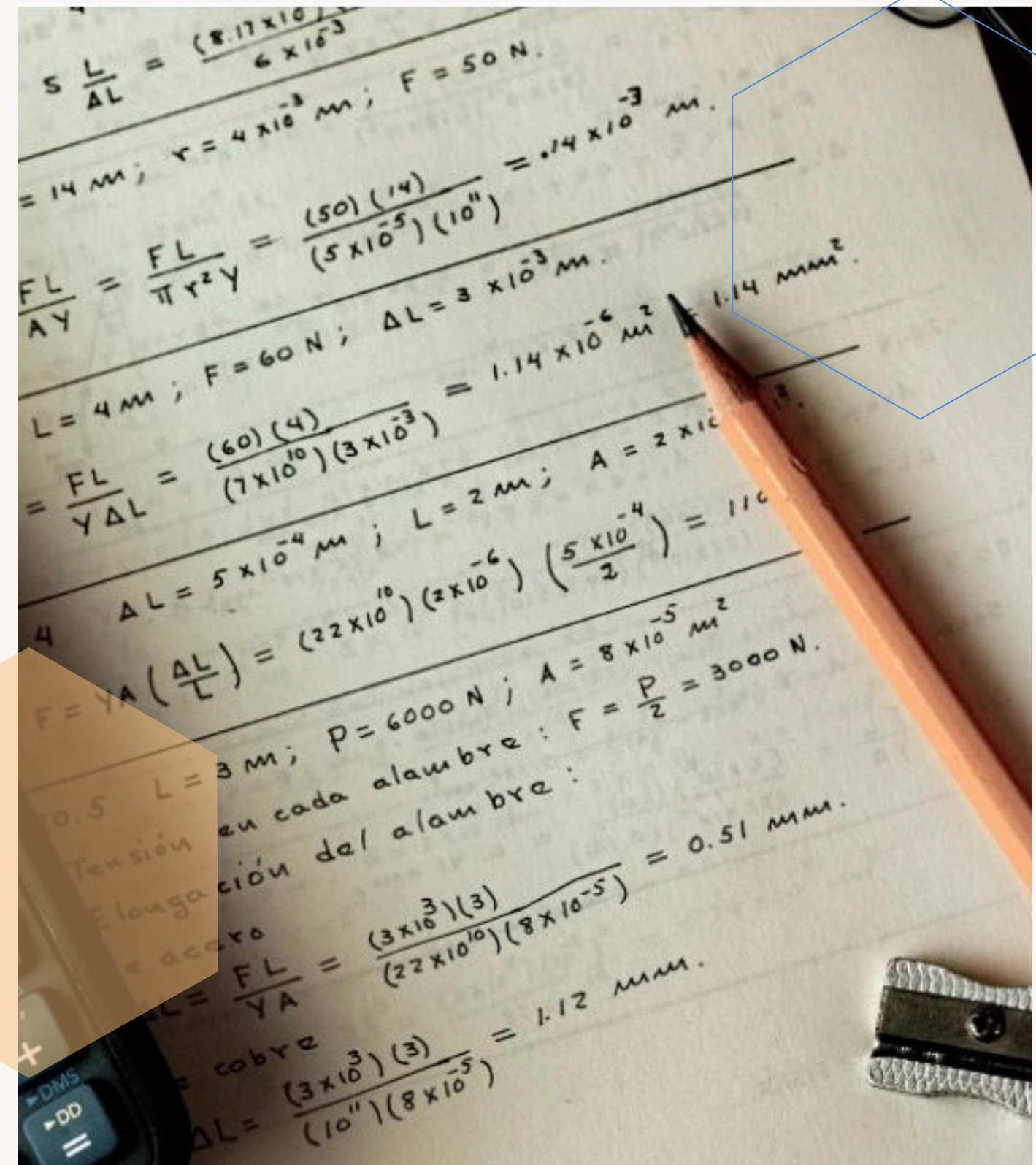
VisionMaths

CPG No. 140

Mentors:

Dr. Nitin Arora

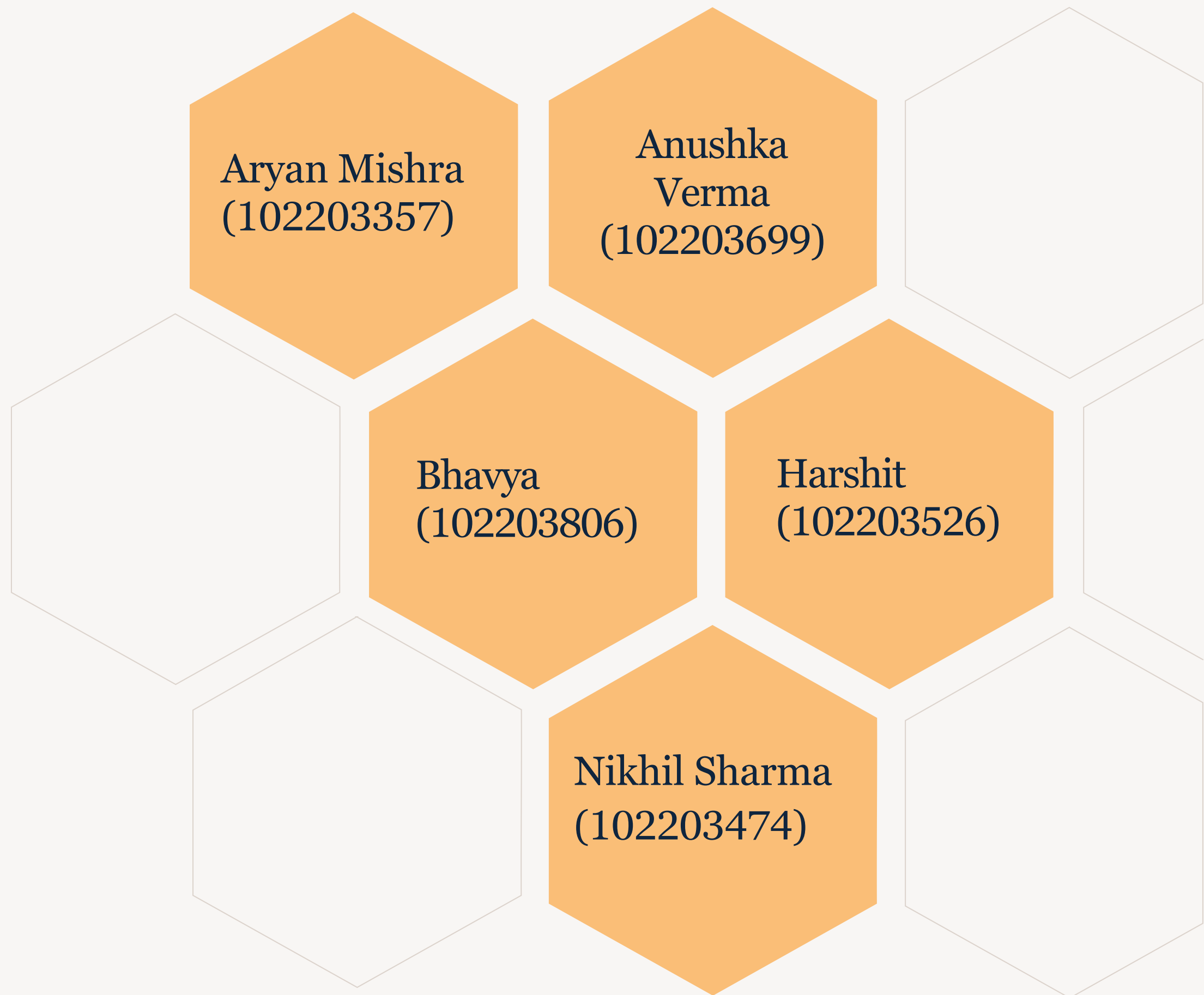
Dr. Sumit Sharma





Members











Presentation Title



Project Overview

VisionMaths is a **smart learning system** that helps **visually impaired students** learn **mathematics** easily. It introduces an **interactive, adaptive Braille display** that **adjusts in real time** to represent **numbers and math symbols**.

- i. **Smart Braille Hardware:** Dots move automatically to display math symbols.
- ii. **ML - Powered Learning:** Machine learning algorithms interpret and convert simple mathematical equations into Braille.
- III. **Seamless Integration:** An intuitive software interface ensures effortless interaction between users and the system.

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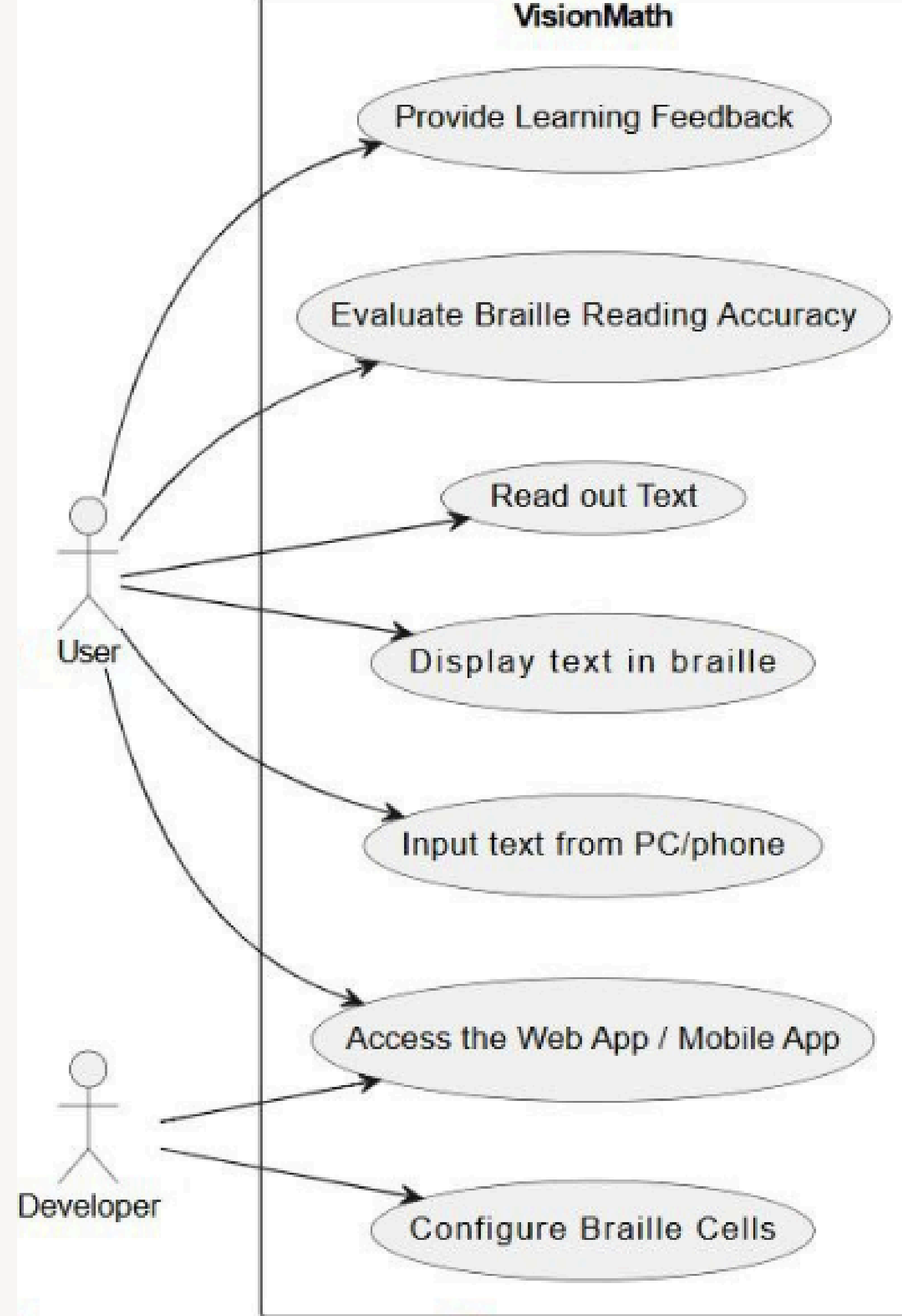
Problem Statement

- **Outdated Braille Tools** – Lack real-time updates & interactivity.
- **Limited Digital Access** – Restricts textbooks & online resources.
- **High Dependence** – Requires sighted assistance for learning.
"To develop an integrated Braille learning system with adaptive hardware and a dynamic online platform, enabling visually impaired students to learn mathematics independently and access up-to-date educational content."

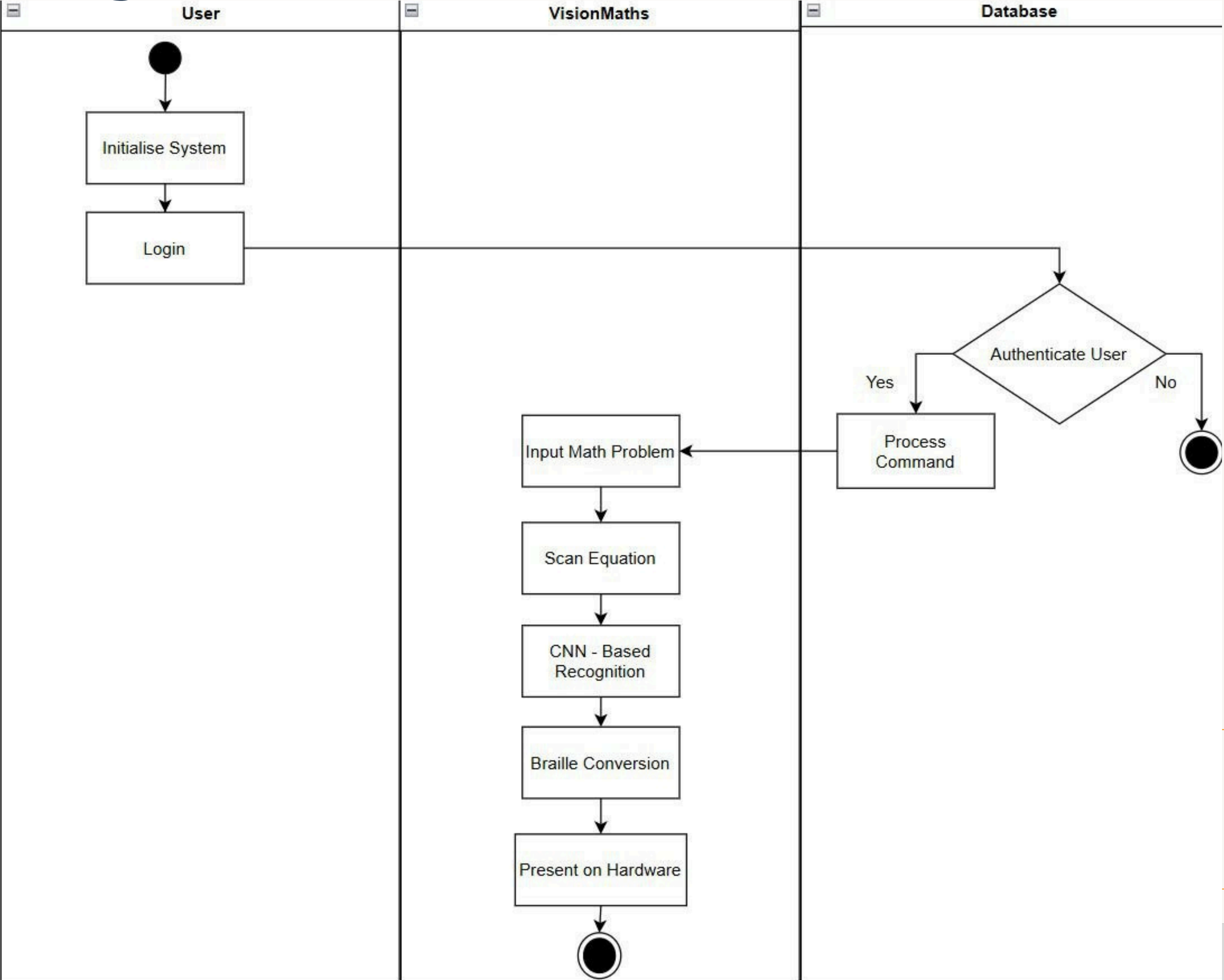
Objectives

- Develop a straightforward and easy to use website that promotes independent learning for the visually impaired.
- Compare **different ML algorithms** and identify the best dataset for training.
- Create a responsive **Braille learning system** with real time movement of braille dots using **hardware**.
- Integrate the **hardware** and **software** to create an easy-to-use learning platform.

Use Case Diagram



Swim Lane Diagram



Project UML Diagrams

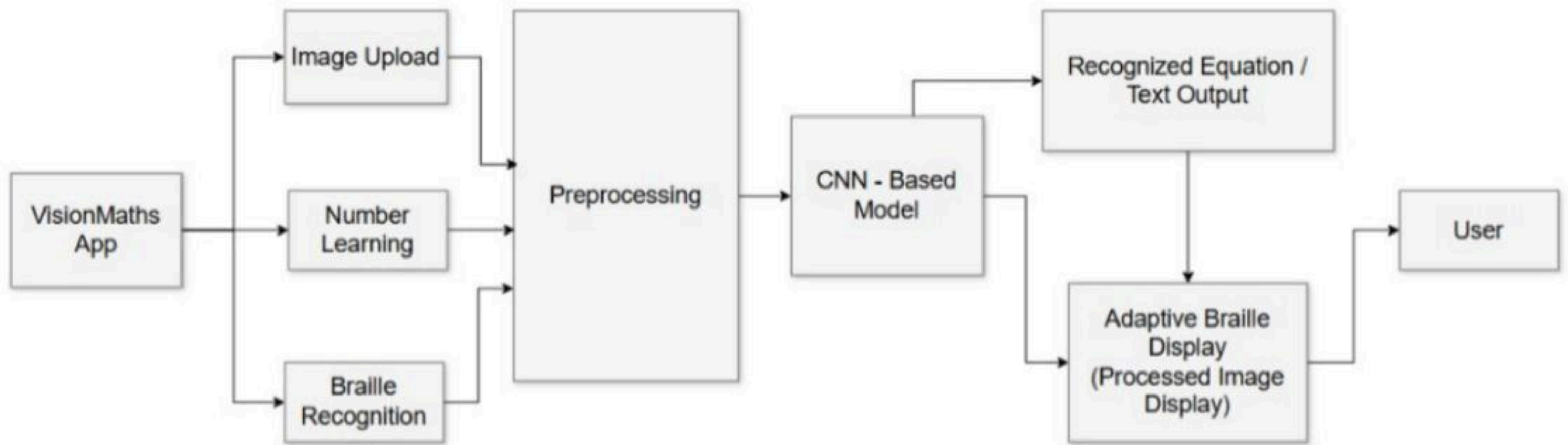
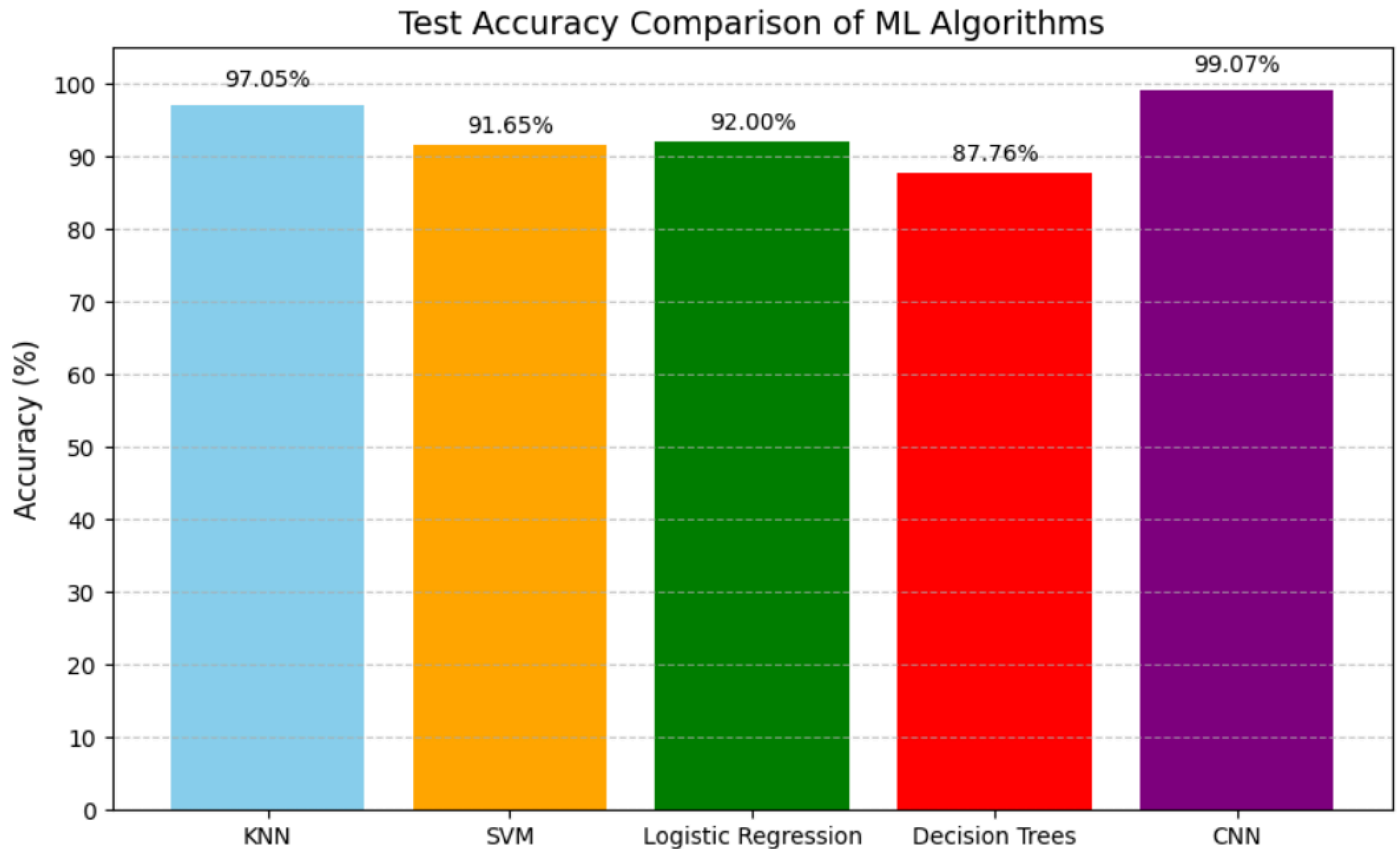
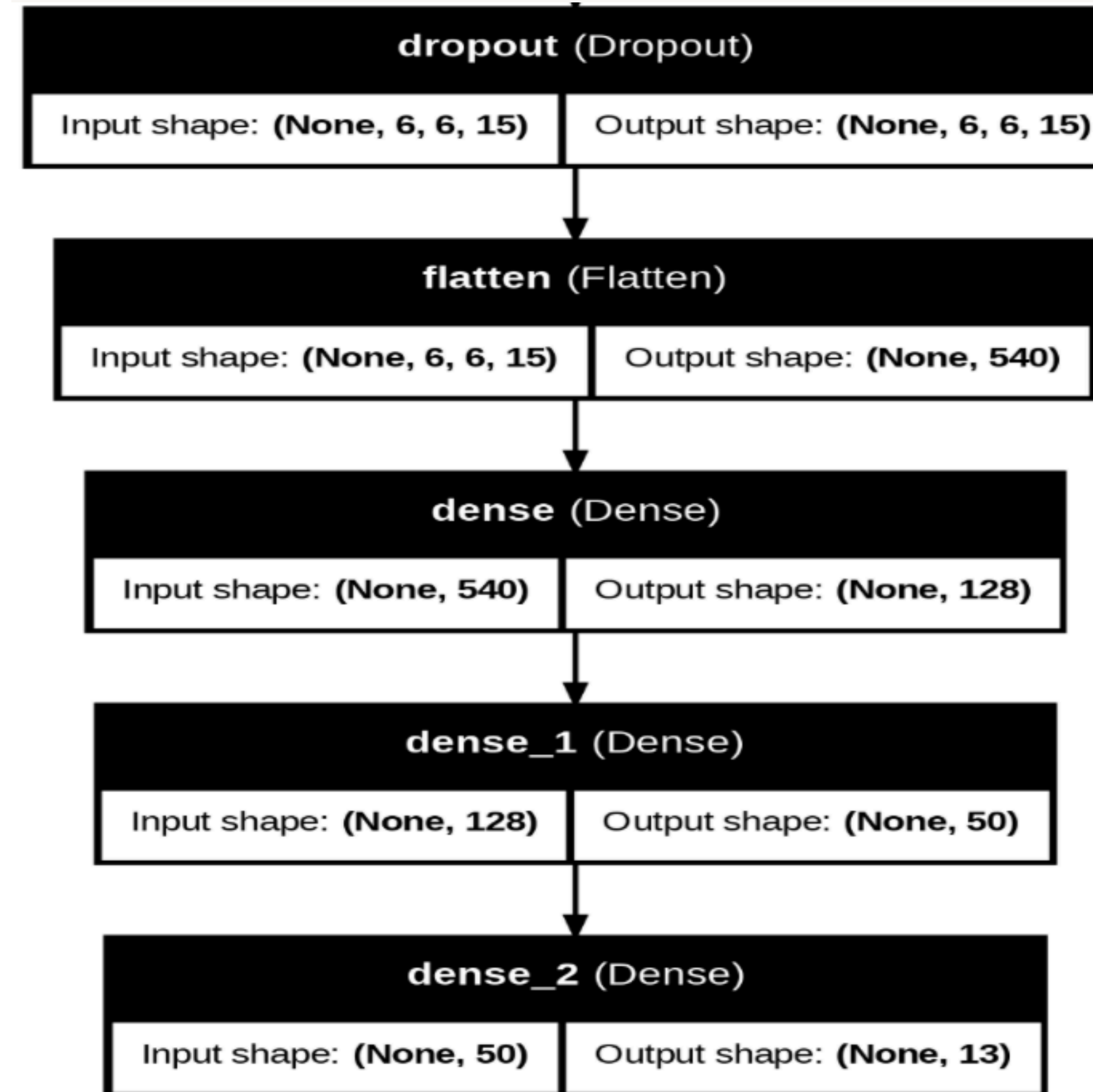
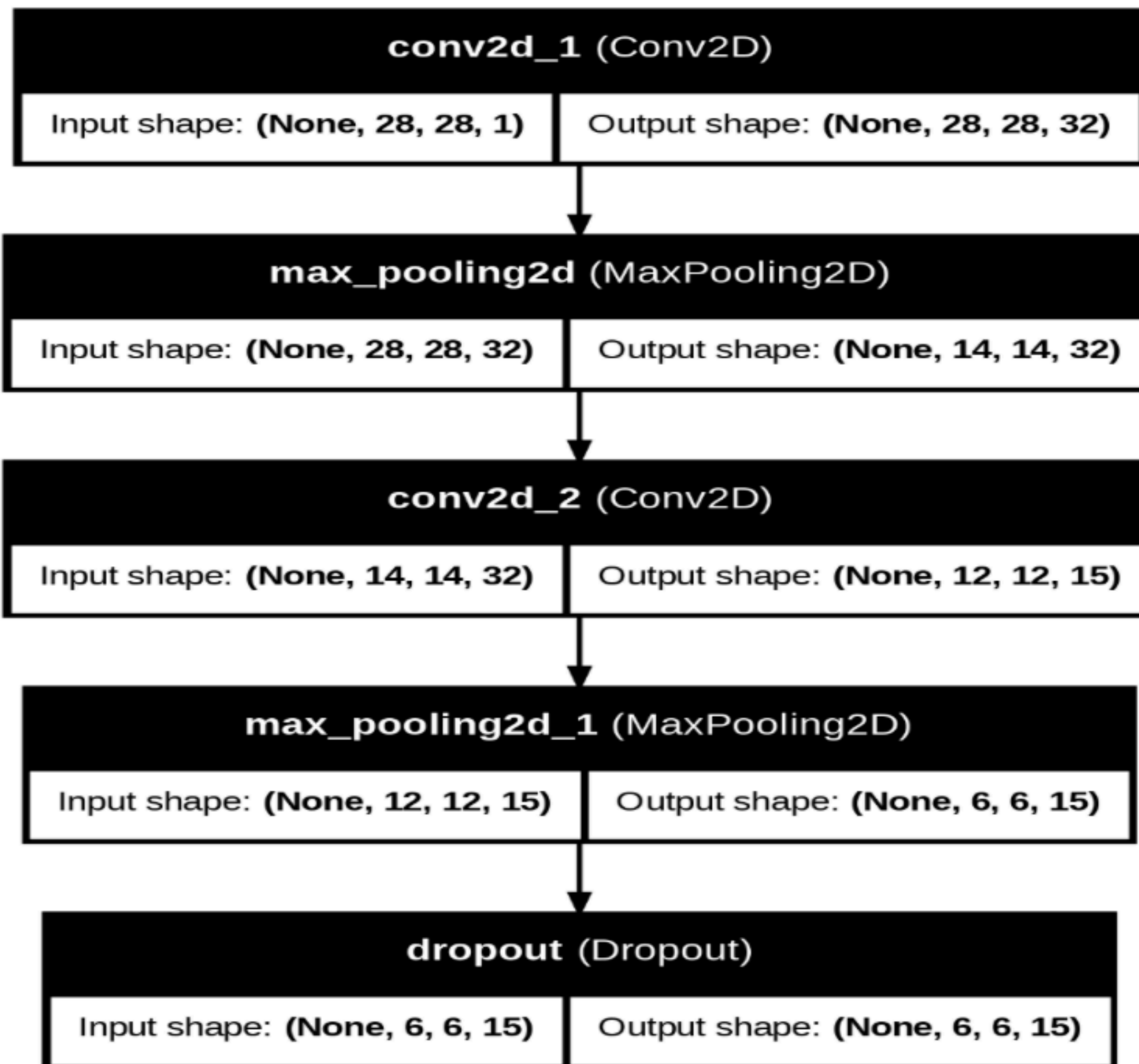


Figure 2. Block Diagram

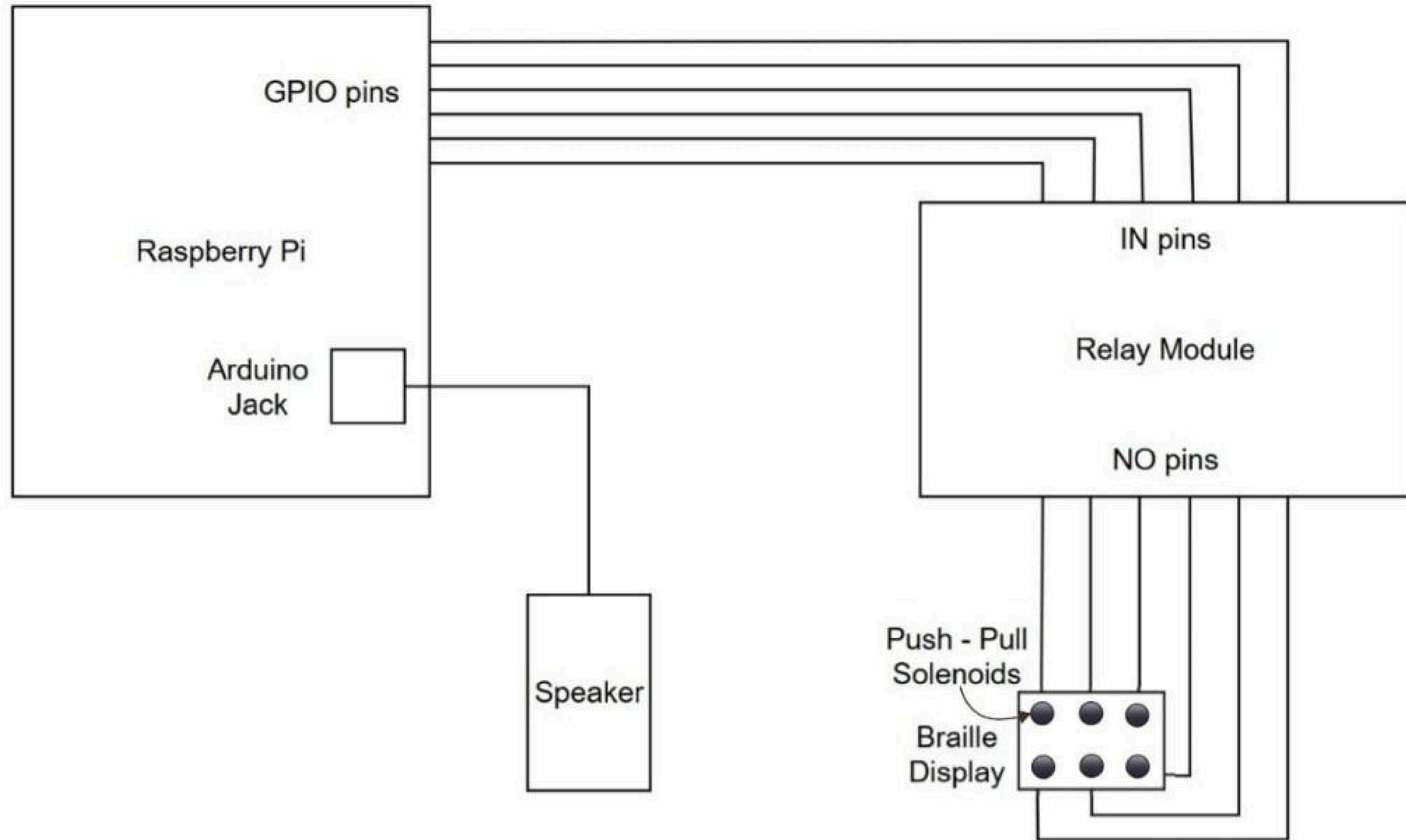
ML Algorithms Comparison Chart



CNN Model Architecture




Hardware Design



UI/UX Design

VisionMath

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**Welcome to VisionMath –
Empowering Education for
Every Learner**

UI/UX Design

VisionMath

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Browse Courses

All Classes ▾

All Subjects ▾

Numbers(1-5)

Class: 1
Subject: Math

Science

Class: 1
Subject: Science

English Grammar

Class: 2
Subject: English

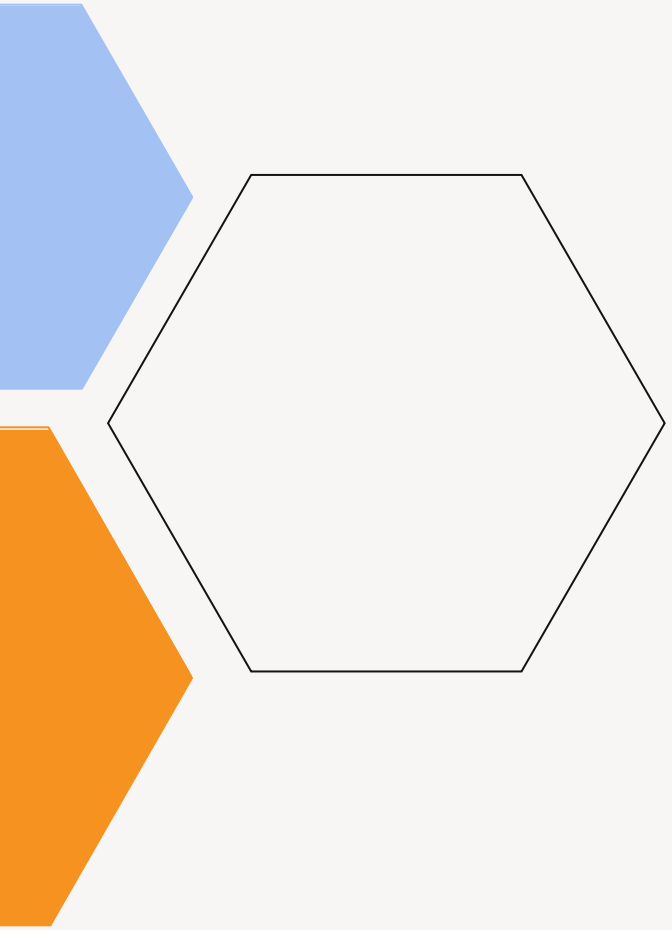

Math

Class: 2
Subject: Math

Science

Class: 2
Subject: Science

Project Outcomes

- 
- Enhanced Accessibility
 - Improved Learning Efficiency
 - Accurate Braille Translation
 - Bridging Learning Gaps
 - Convenient and Reliable Solution
- 

Cost Analysis

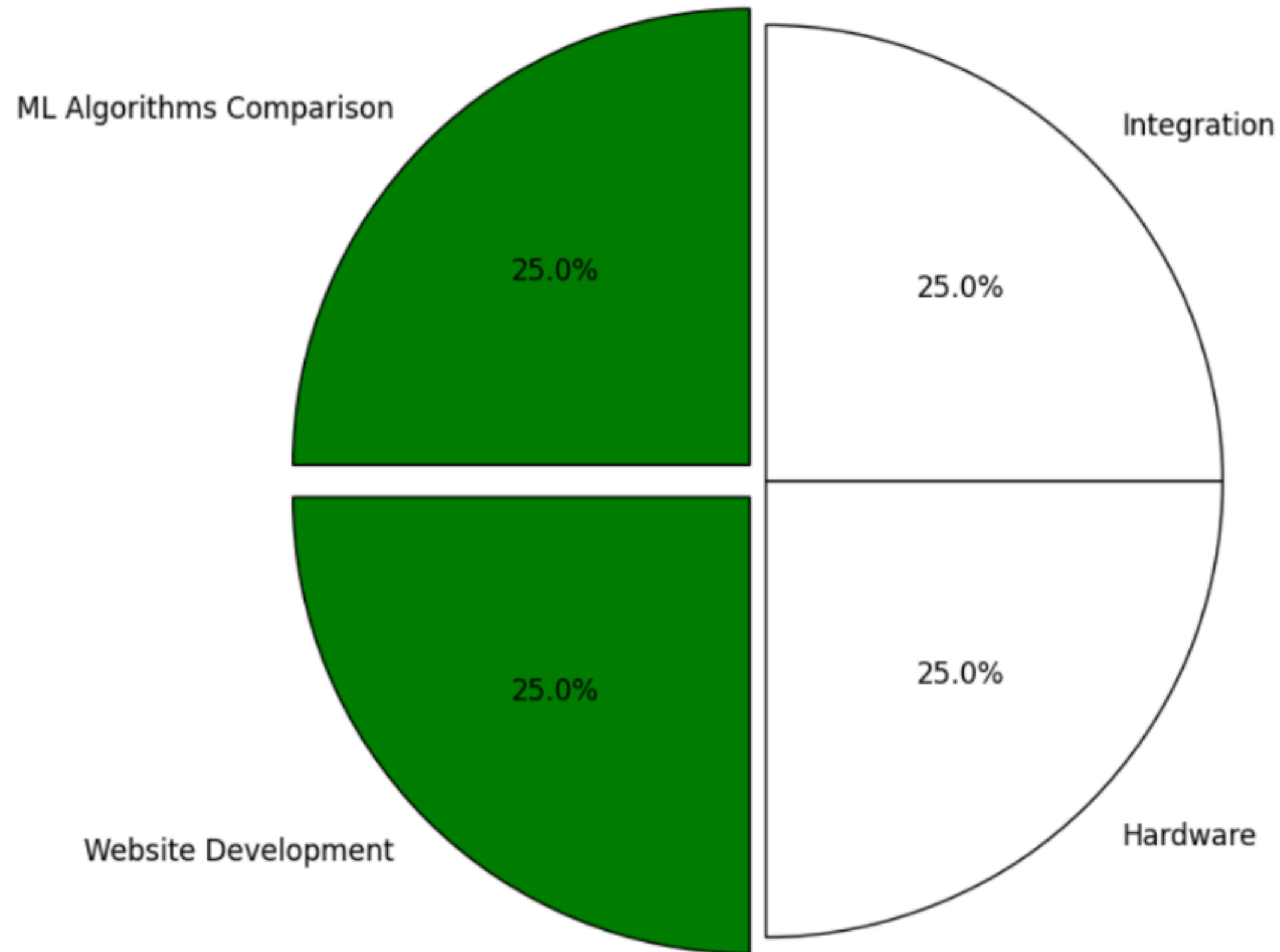
SR	ITEM	QUANTITY	COST(Rupees)
1	Push Pull Solenoid Electromagnet (DC 12V)	6	2605
2	Raspberry Pi 4 (4GB)	1	5298
2	Adaptor (5W)	1	100
3	Sandisk Memory Card (64GB)	1	520
4	Jumper Wires	30	120
5	Relay Module (5V)	1	350
6	Diode	10	30
7	Breadboard	1	80
8	Wires	-	40
9	PCB	1	40
10	Sandisk Ultra Memory Card (32GB)	1	450
11	HDMI Cable	1	80
12	Connector – Micro	1	120
13	Mic	1	200
14	Speaker	1	290
15	Sound Card	1	260
16	Adaptor(60W)	1	300
			TOTAL = 10883

Individual Roles

Role	Expected Contribution
Frontend	Anushka Verma, Bhavya, Aryan Mishra
Backend	Aryan Mishra, Anushka Verma, Bhavya
Machine Learning	Nikhil Sharma, Harshit
Ui/UX	Harshit, Nikhil Sharma
Hardware	Anushka Verma, Bhavya, Nikhil Sharma, Aryan Mishra, Harshit
Documentation	Anushka Verma, Bhavya, Nikhil Sharma, Aryan Mishra, Harshit



Progress Till Now



Meet our team



Harshit



Bhavya



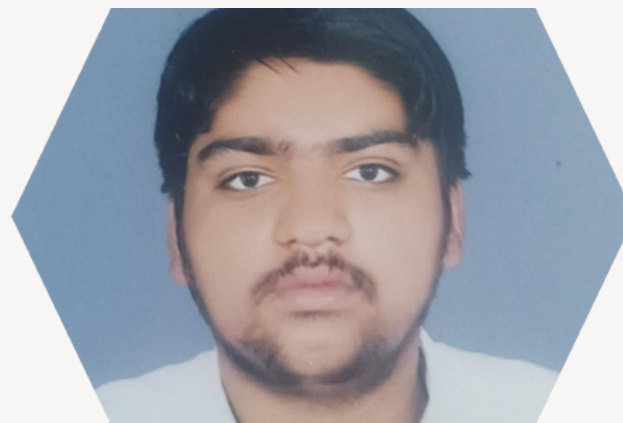
**Anushka
Verma**



**Dr. Nitin
Arora**



**Dr. Sumit
Sharma**



**Nikhil
Sharma**



**Aryan
Mishra**

Patent Application

Welcome ASHUTOSH BANSAL

Sign out

सत्यमेव जयते

Online Filing Of Patents

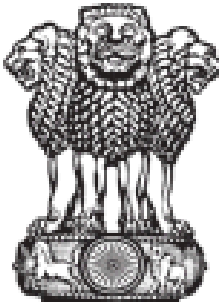
Controller General of Patents, Designs & Trade Marks

Plot No. 32, Sector 14, Dwarka, New Delhi-110075


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सत्यमेव जयते



INTELLECTUAL
PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

Docket No 83383

Date/Time 10/08/2025

To

ASHUTOSH BANSAL

User Id: tosh2107

H NO 17A GALI NO 2 ROYAL ENCLAVE

URBAN ESTATE PHASE 1

Sr. No.	App. Number	Ref. No./Application No.	Amount Paid	C.B.R. No.	Form Name	Remarks
1	202511075984	E-5/2463/2025/DEL	0	----	FORM 5	
2	202511075984	E-3/18794/2025/DEL	0	----	FORM 3	

Total Amount : ₹ 0

Amount in Words: Rupees Only

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