



Ministry/Organization Name: Department of Empowerment of Persons with Disabilities(Divyangjan), Ministry of Social Justice and Empowerment

Theme Name: Smart Education

Team Name: E-Drishti

Team Leader Name: Ishita Kapoor

Problem statement Title: Difficulties to understand the concept in math & science for visually impaired person.

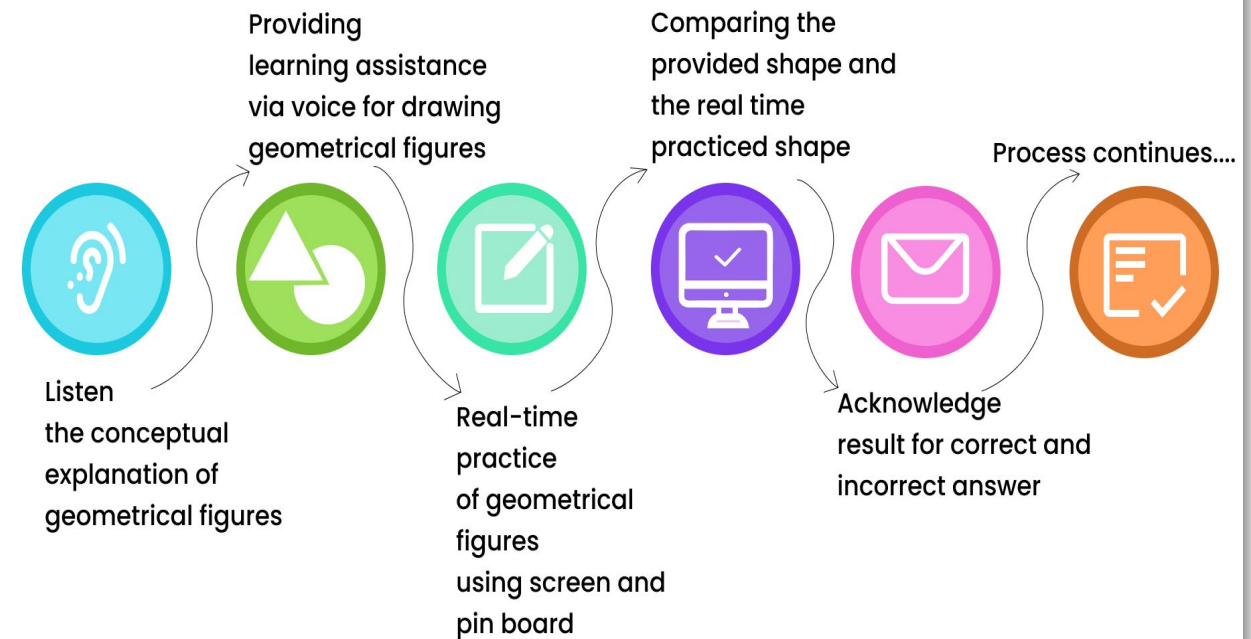
PS Code: RK764 **Institute Code:** C-46109

Institute Name: Ajay Kumar Garg Engg. College

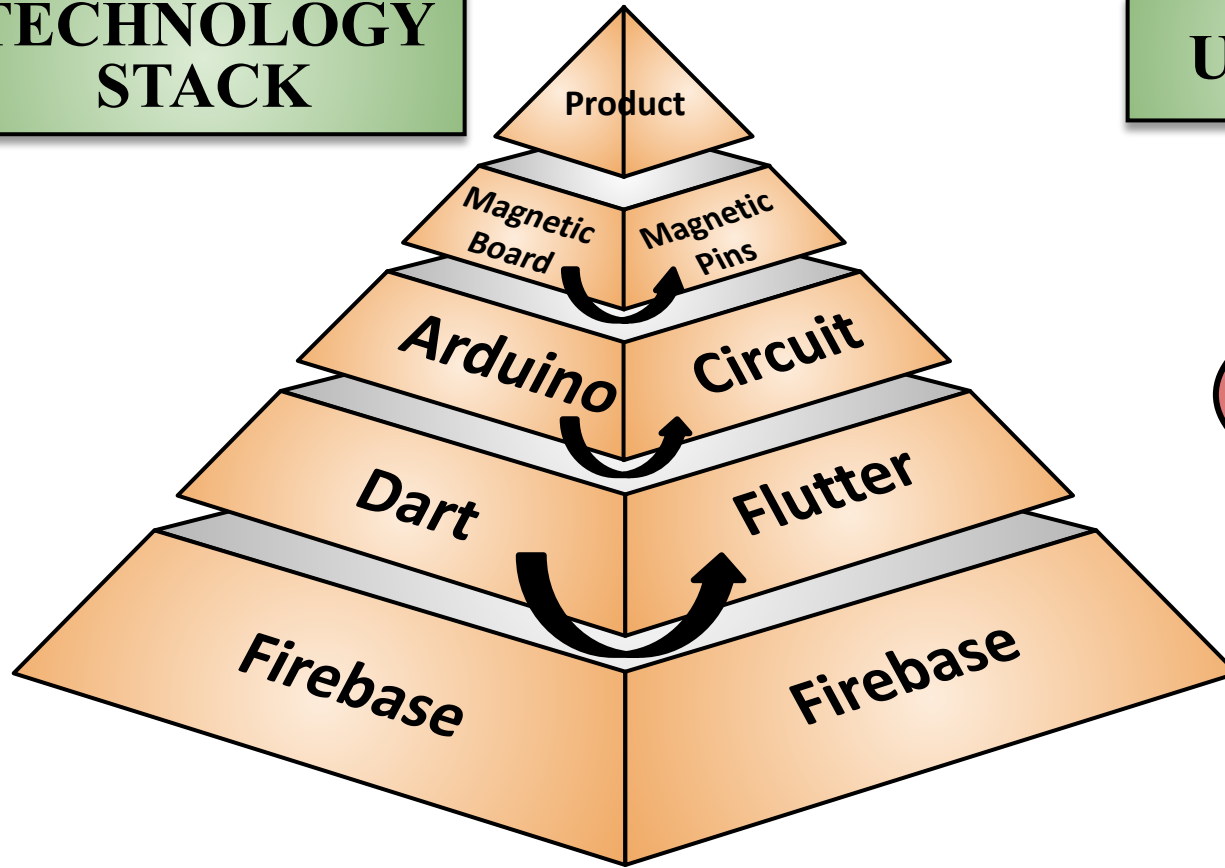
SOLUTION

- ❖ Geometrical/pictorial concepts will be explained through voice using advanced visualization techniques.
- ❖ Shape displayed on the application software will be displayed on the palpable touchpad using raised pins/buttons.
- ❖ **Real-time practice** on a digital screen.
- ❖ The geometry so obtained on the screen is **displayed** on the palpable touchpad **in the form of raised buttons**.
- ❖ Shape can be **understood** by visually impaired people by **touching the raised buttons**. The shape drawn by the visually impaired person is **checked for its accuracy**.
- ❖ Final result is displayed on the app screen.

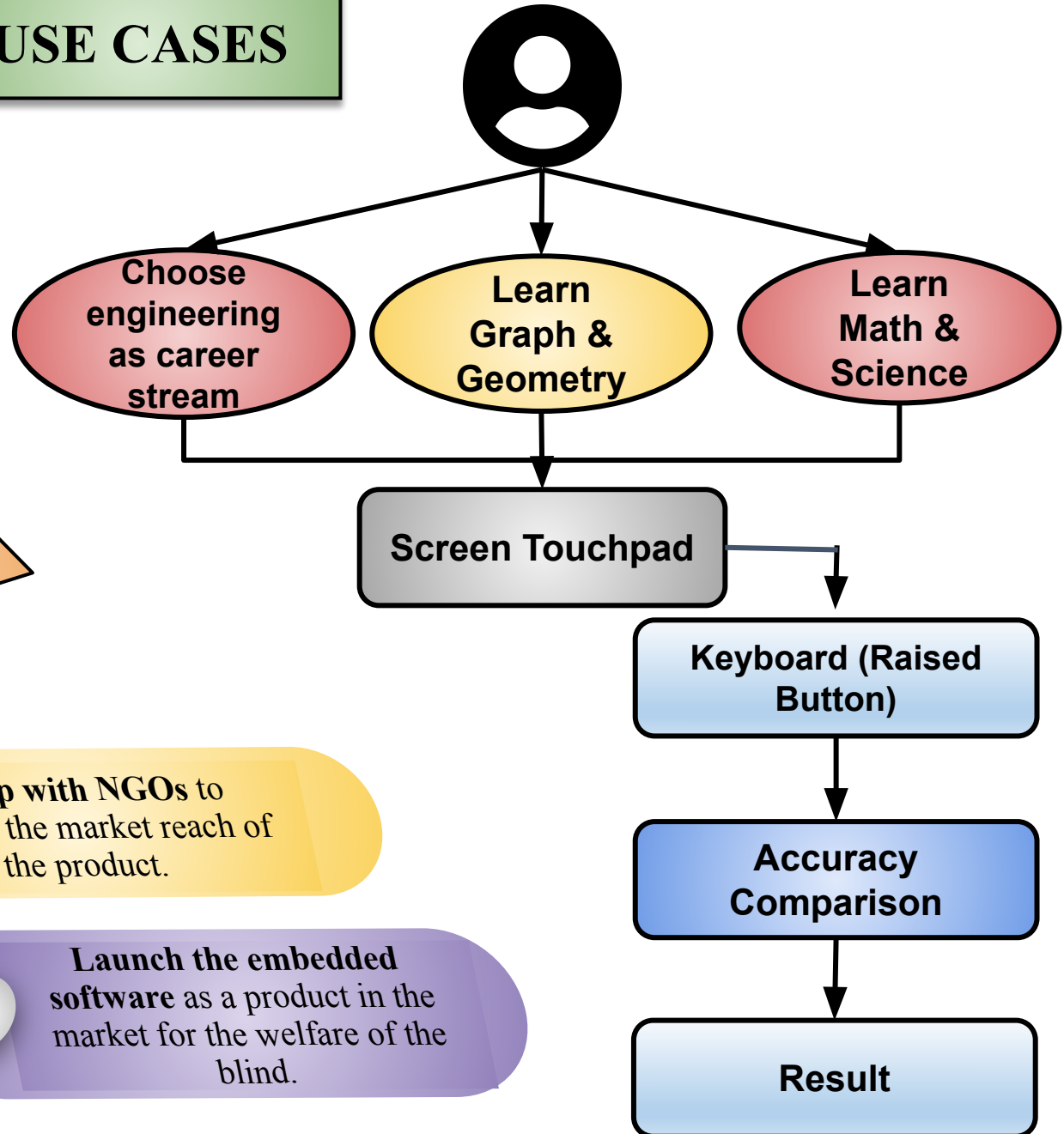
IDEA OF APPROACH



TECHNOLOGY STACK



USE CASES



FUTURE ASPECTS

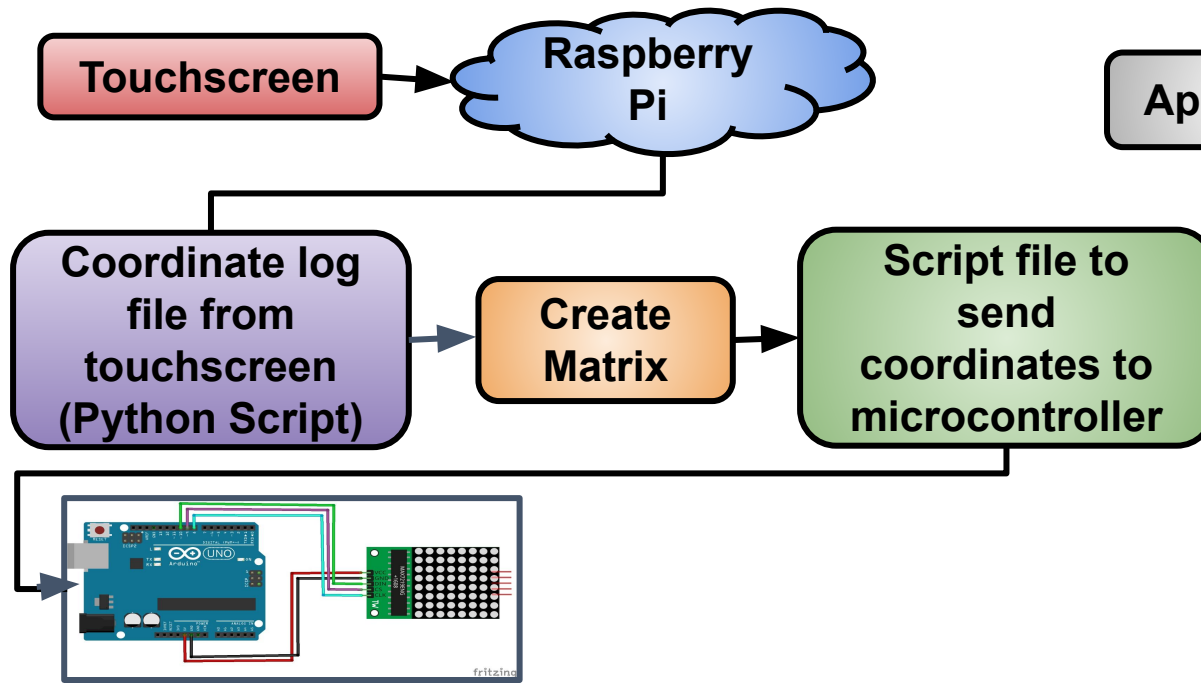
Expanding the scope of recorded explanation including all the mathematical and physics concepts.

Tie-up with NGOs to increase the market reach of the product.

Integrating braille input and output functionality.

Launch the embedded software as a product in the market for the welfare of the blind.

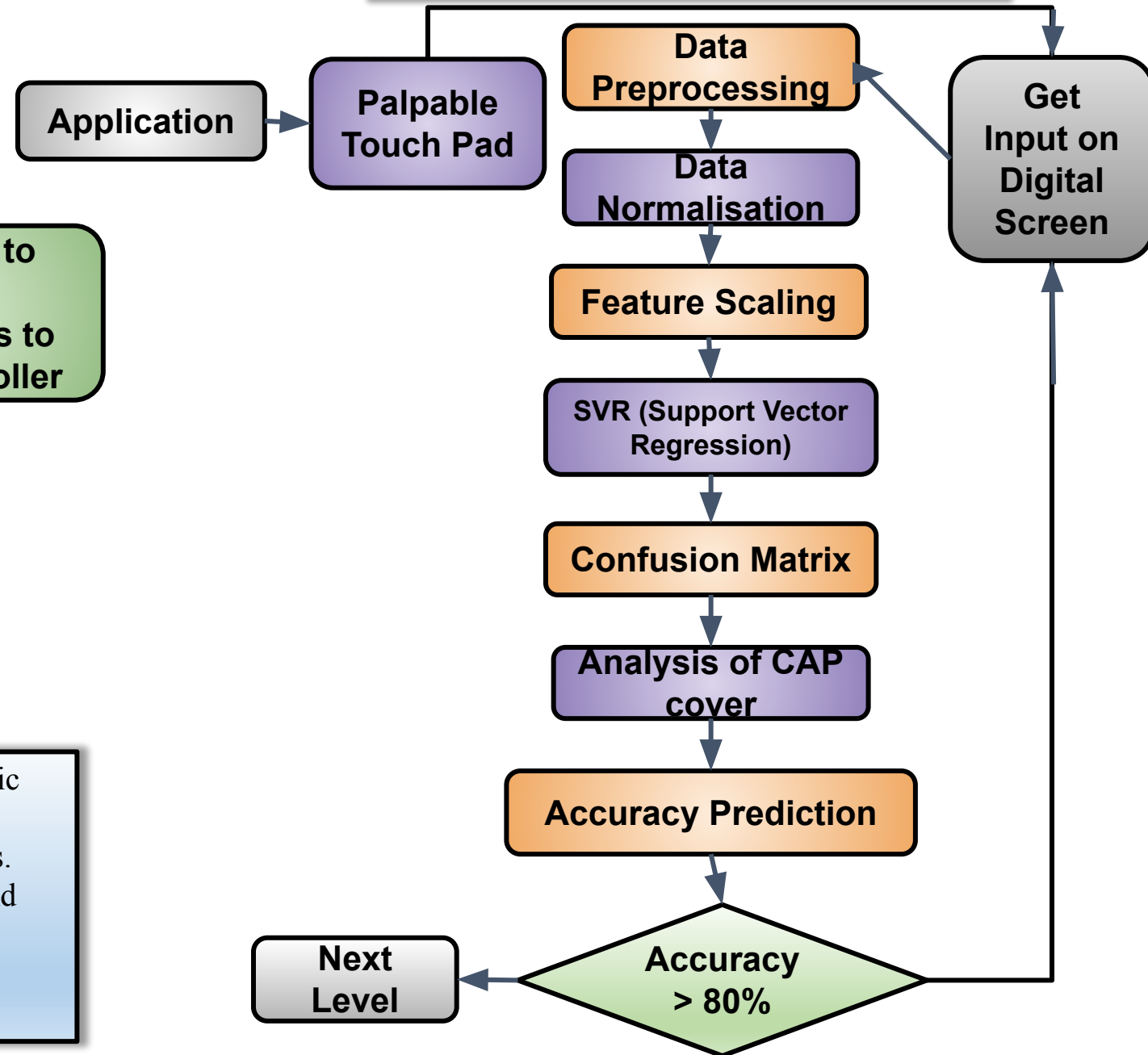
HARDWARE DESIGN

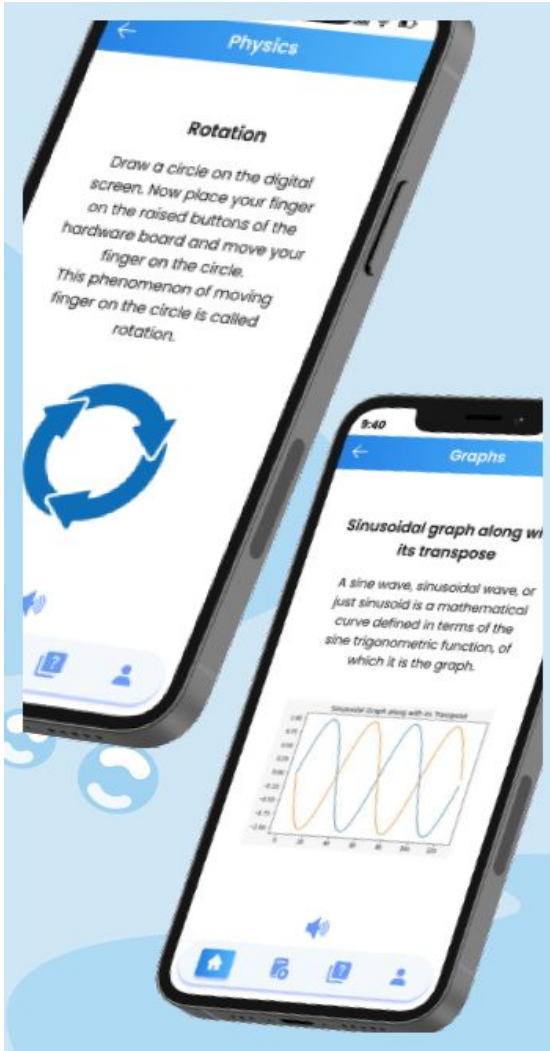
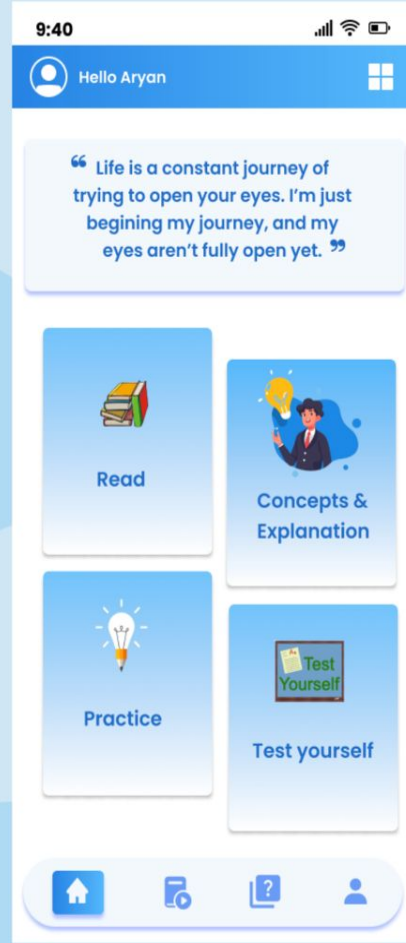
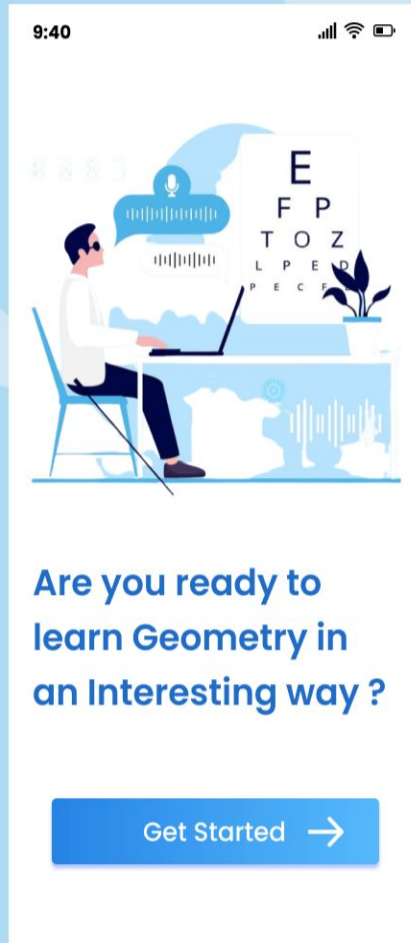


USP/NOVELTY

- ❖ **Smart palpable touchpad** for interpretation of geometric graphs and figures.
- ❖ Interactive and **Human-friendly voice guide** to students.
- ❖ **Hardware modules** to make them understand shapes and angle better.
- ❖ **Smart and inclusive** to give instant feedback.
- ❖ Help them to **pursue a career in STEM**.

DATA FLOW DIAGRAM





Video Demonstration For Tutorial:

https://drive.google.com/file/d/1nn17VF_dVVfXzHairqnX2xxKKnCEwJrA/view?usp=sharing

Youtube Video Link:

<https://youtu.be/UbSv7VA4uMo>

Links: [LAYOUT](#) | [PROTOTYPE](#)

TEAM DETAILS

TEAM MEMBERS

Ishita Kapoor
CSE, 2nd Yr.
(Team Leader)

Anishkha Chaudhary
CSE, 2nd Yr.

Astha Tripathi
CSE, 2nd Yr.

Nishtha Pandey
CSE, 2nd Yr.

Nitish Chaurasiya
CSE, 2nd Yr.

Priyanshi Kushwaha
CSE, 2nd Yr.

TEAM MENTORS

Dr Pratima Singh
AI/ML Domain
20+years (exp.)

Mr Rahul Gautam
Software and Hardware
Embedded Systems
5+years (exp.)

GROUNDWORK



We met a visually impaired person named Dhaninjay: He was pursuing BA. When we asked about pursuing a degree in engineering, he addressed the fact that after 8th standard, maths and science were removed from their curriculum. Thus, leading to inability to pursue a career in STEM. These voice teachings would help them to pursue careers in engineering, that's how we are gonna bridge the gap between visually impaired and sound people.