ROBOTICS CLUB
IIT Guwahati

HAPNAV

MAKING
A BETTER PLACE
FOR EVERYONE

Join us for a dive into the future of accessibility.

Current Scenario

01

Globally, at least **2.2 billion** people have a near or distance vision impairment.

02

Population growth and ageing are expected to **increase** the risk that more people acquire vision impairment.

03

In the case of older adults, vision impairment can contribute to **social isolation**, **difficulty walking**, a **higher risk of falls and fractures**, and a greater likelihood of early entry into nursing or care homes.

World Health Organization
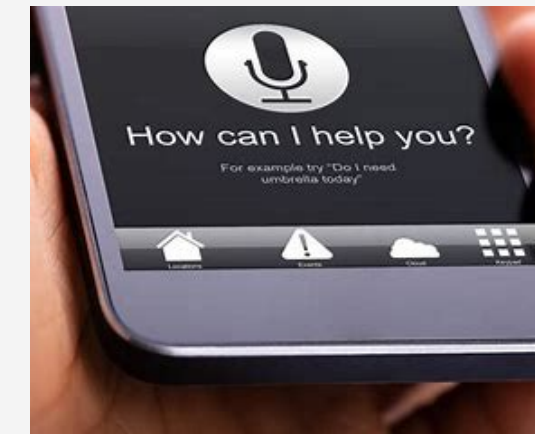
Basics of Blind Navigation

Cane

The most popular way for blind people to navigate their environment

Guide Dog

A loyal companion for the blind and a trusted assistant for navigation

Voice Assistants

Smart tools that can guide users and provide helpful information through voice commands.

Our Solution

HapNav

- A **wearable navigation device** for blind or visually impaired people based on **haptic feedback sensors**.

- Sensor and camera-based **path planning** and **object avoidance**

- Making it possible to navigate in any **unknown environment**

The Technology of Haptics

What are haptics ?

The science of touch and its potential for wearable technology

Haptic Feedback

The technology that allows wearables to communicate through touch and vibration

Benefits of Haptics

Better communication, enhanced safety, and greater immersion are just some of the advantages of this technology.

(a) Top disk, Sensor, Bottom disk (b) Metal disk, Active area
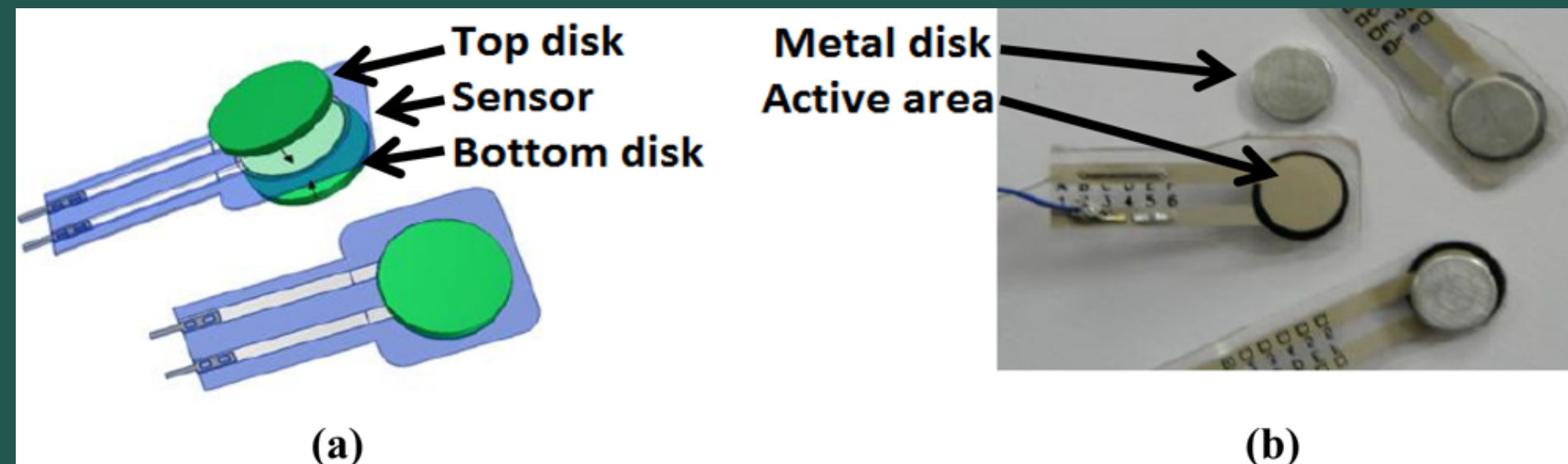
Accessibility Beyond Disability

The Future

- Astronauts have used haptic sensors to **navigate and explore in space**, where sight is limited and touch is key.

- Researchers are developing devices that can **translate sound into touch or vibration**, allowing the deaf to "hear" their surroundings.

Smart Cities

Blind navigation and haptic sensors can help all people navigate cities, including the elderly and those with temporary disabilities.
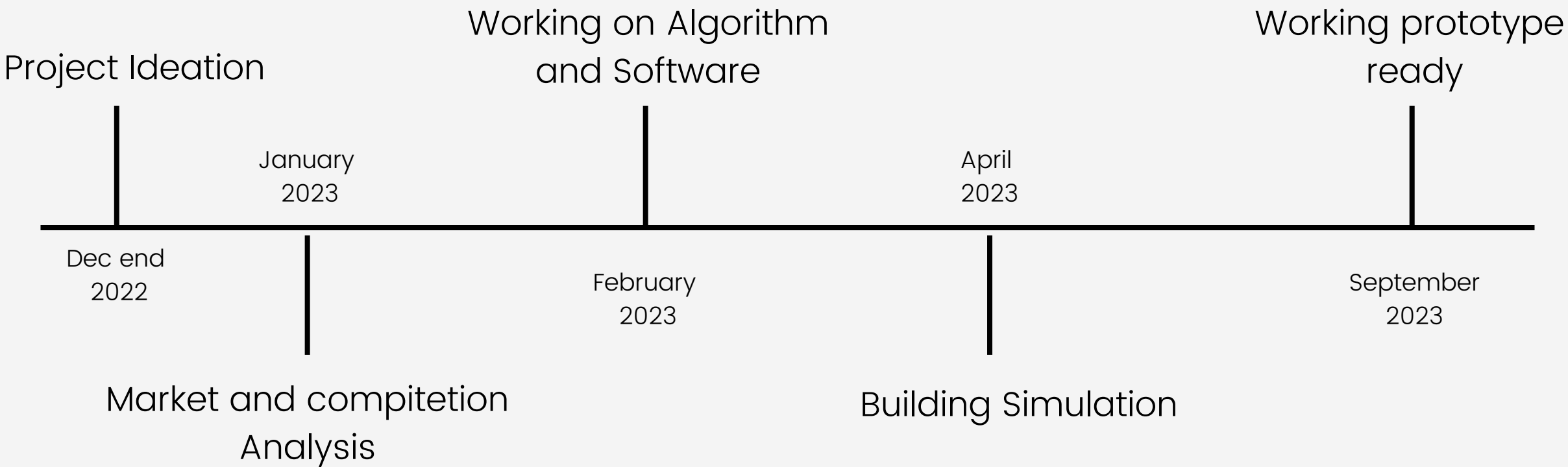
Travel and Tourism

Tourist attractions and airports can use haptic sensors to improve navigation and accessibility for all visitors.

Improved Safety

Haptic sensors can provide tactile feedback to alert drivers, pilots, and train conductors to potential safety hazards.

Timeline

Accessible design is not just a moral obligation, it is a creative opportunity to design better products and services for all.

Project Ideation

Working on Algorithm and Software

Working prototype ready

January 2023

April 2023

Dec end 2022

February 2023

September 2023

Market and compitetion Analysis

Building Simulation

The Team

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Corporate and Software

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