

## INTRODUCTION

Disabilities encompass a wide range of individuals spanning various ages, genders, races, ethnicities, and socioeconomic backgrounds. According to data from the CDC, 1:4 adults in the United States lives with a disability. 1:33 newborn has a prenatal problems and 2%-3% of kids have intellectual disabilities .

Intellectual and developmental disability (IDD) limitations in intellectual functioning and adaptive behavior, as well as difficulties in various aspects of development. Assistive technology (AT) is the technological tools employed by individuals with disabilities to carry out tasks that could be challenging or unattainable otherwise. Artificial Intelligence (AI) is defined as the capacity of machines to learn from data and resolve complex issues. Among all the subcategories of AI, machine learning (ML) is the most widely adopted method. Recent advancements have opened doors for people with disabilities to become part of an inclusive environment. Teledentistry, use of AI for radiograph evaluations and accurate diagnosis, digital impressions/prosthesis manufacturing and assisted robotics have all been applicable technologies in dentistry. AI serves as a catalyst for equality, ensuring that all individuals, regardless of their disabilities, are provided with a level playing field. The integration of assistive technology with AI empowers people with IDD to lead healthy, productive, self-reliant, and respectful lives. It also holds the potential to cultivate positive effects on both an individual's health and their family's well-being, while also generating broader socioeconomic advantages.

This project seeks to introduce AI concepts and its connected principles. Furthermore, it will delve into current and upcoming AI applications that offer substantial advantages to individuals dealing with visual, hearing, mental, and various physical impairments.

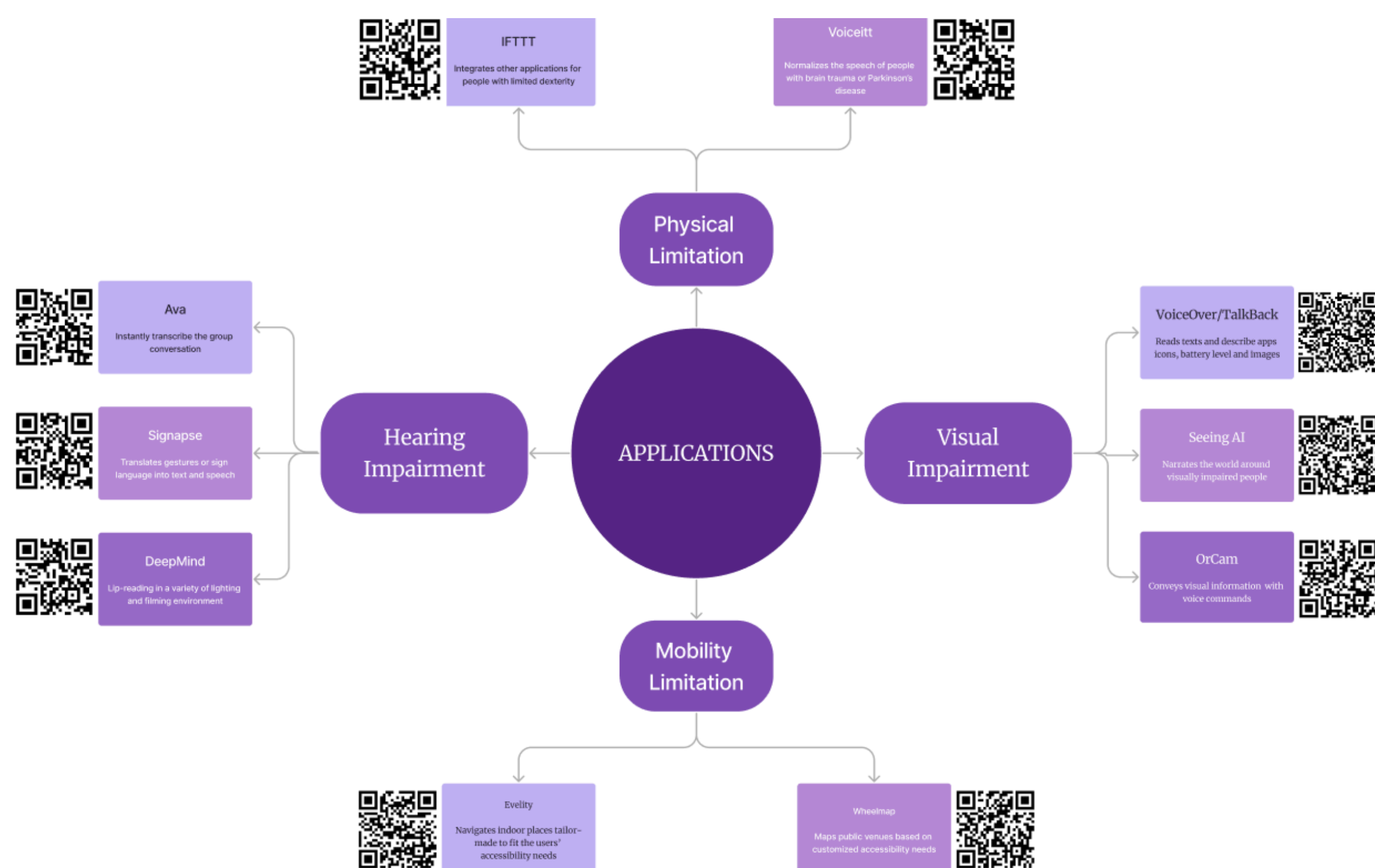
## METHODS & MATERIAL

The literatures for this project was selected from the following databases: Google Scholar, Medline, Nature, WHO, NIH, PubMed, ResearchGate, ScienceDirect and Taylor & Francis online in computer applications in the healthcare system. Scan the QR codes to get more information.





## PREDICTIVE MODELS

AI/ML have the capacity to preempt potential complications arising from disabilities. Various predictive models have been devised for tasks like predicting pain<sup>(1)</sup>, detecting intracerebral hemorrhages in CT scans<sup>(2)</sup>, predicting<sup>(3)</sup> and evaluating<sup>(4)</sup> strokes. Furthermore, innovative approaches like utilizing video-conferencing coupled with AI have emerged to mitigate the occurrence of missed diagnoses, as demonstrated in the case of KBG syndrome<sup>(5)</sup>. A plethora of AI-driven applications and wearable devices exist, all geared towards fostering a more inclusive world for individuals with IDD.

## APPLICATIONS

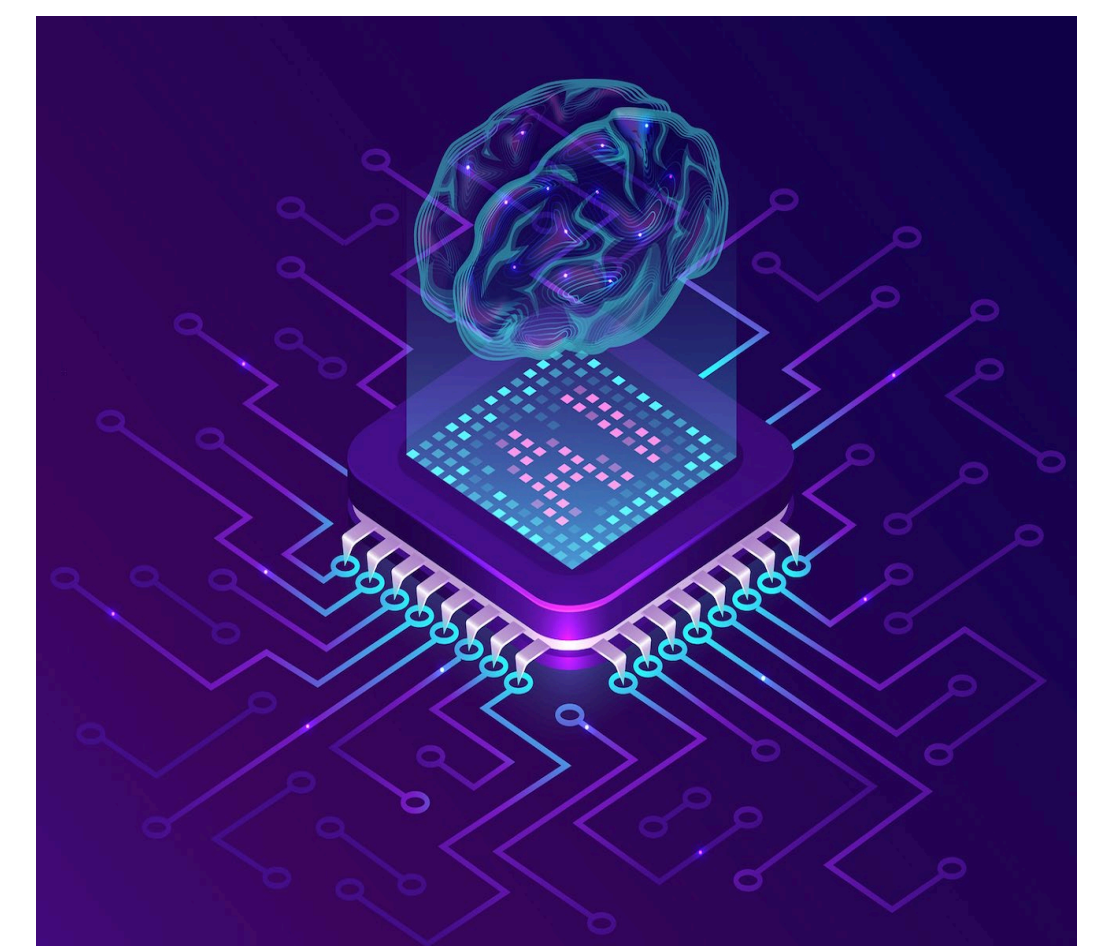


## WEARABLES

- ❖ A wearable tongue driven device for disabled individuals, especially with spinal cord injuries 
- ❖ A hands-Free "Auto" Toothbrushes that brush the teeth and gum for you 
- ❖ An AI-powered exoskeleton enables individuals with paraplegia to regain the use of their legs 
- ❖ A wireless, battery-free, Band-Aid-like sensor that monitors vital signs, movement, body orientation and heart sounds. <sup>(9)</sup> 

## CONCLUSION

Disabilities can manifest in numerous ways. Not all individuals share the same characteristics or needs. AI/ML technologies hold the promise of fostering inclusivity for individuals with disabilities. Nevertheless, it's essential to recognize that these technologies may not completely eliminate all challenges faced by this demographic due to the intricate and diverse nature of disabilities. The risk of bias also looms over equitable access to vital services. Should AI systems exhibit bias towards specific groups or fail to grasp the needs of particular individuals, the consequence could be erecting barriers instead of dismantling them. The pursuit of personalization, often a crucial factor in providing effective assistance to those with disabilities, poses a complex challenge. Crafting AI systems that cater to individual needs necessitates intricate algorithms and comprehensive datasets that accurately represent the wide diversity of disabilities.



## REFERENCE



(1)



(2)



(3)



(4)



(5)