**Intelligent Spectacle:**

Project concept:

This project aims to assist visually challenged people by using image recognition technique. Spectacle have camera inside it, so that it can identify shapes, objects and letter as well. It can identify person like friend, wife, son, daughter and any relatives. It provides the fastest and most accurate OCR (Optical Character Recognition) available, and can read any type of text from any surface (e.g., food packaging, posters, display screens, QR and barcodes, handwritten text, etc.), recognize faces, describe scenes, detect colors, find objects, read complex documents and letters, and more.

System Level design:

Image sensing system

Software System to recognise object or text

Database of enrolled user

Compare Actual image and registered Image

Audio System

Hardware Level design:

Camera sensor(CMOS sensor)

Image processor

Main Processor

Audio Signal Processor

Digital to analogue converter

Speaker

Software System:

Face/Object Detection start

Upload Image

RGB to grey conversion Image database

FFT

Absolute and mean

Difference between input and database image

Difference > threshold?

Image matches or not signal

Digital Audio signal generation

Appendix:

CMOS sensor:

The two main types of digital image sensors are the charge-coupled device (CCD) and the active-pixel sensor (CMOS sensor), fabricated in complementary MOS (CMOS) or N-type MOS (NMOS or Live MOS) technologies. Both CCD and CMOS sensors are based on MOS technology with MOS capacitors being the building blocks of a CCD, and MOSFET amplifiers being the building blocks of a CMOS sensor. Cameras integrated in small consumer products generally use CMOS sensors, which are usually cheaper and have lower power consumption in battery powered devices than CCDs. CCD sensors are used for high end broadcast quality video cameras, and CMOS sensors dominate in still photography and consumer goods where overall cost is a major concern. Both types of sensor accomplish the same task of capturing light and converting it into electrical signals.

FFT:

A fast Fourier transform (FFT) is an algorithm that computes the discrete Fourier transform (DFT) of a sequence, or its inverse (IDFT). Fourier analysis converts a signal from its original domain (often time or space) to a representation in the frequency domain and vice versa. An FFT rapidly computes such transformations by factorizing the DFT matrix into a product of sparse (mostly zero) factors

