Paper summary:

[1] An Audio Aided Smart Vision System for Visually Impaired

- Intel Edison

- Used OpenCV and tesseract

- OCR is implemented by capturing a photo from the video stream

- Not real time, reads out the text after capturing an image, Bluetooth headphone

This project is using one of our features only. They used Intel Edison as the main processor, Tesseract to extract text from an image (captured from video stream) and also OpenCV to process image from the video streaming. They faced several problems recognizing text from image such as background of the image, distance, blurriness, recognizing abbreviations etc. Same problems as we found in our project using tesseract OCR engine.

[2] Lightweight Smart Glass System With Audio Aid for Visually Impaired People

- Intel Edison

- Detects only public Signs

- Used OpenCV and SURF Algorithm

- Voice instructions, Bluetooth headphone

- Real time

- Limited usage, only for specific public signs that are trained in the program

This device is capturing video stream from a camera and searching only for common public signs in the cities and voice outputting an instruction or hint according to that sign if it is recognized. They used SURF algorithm (from OpenCV library) to recognize the signs in real time.

[3] Smart Glasses for the Visually Impaired People

- Raspberry Pi 2, camera module

- Text recognition, OCR

- Showed comparison between available reading devices

- Used Simulink (MATLAB, for image processing, cropping and detecting text area)

- Tesseract OCR engine

This device is only for text recognition by capturing a photo, processing through Simulink and text extracted by Tesseract engine.

[4] Smart vision for the blind people

- Recognize traffic signal pattern, obstacles to cross the road

- 2 Camera takes images from sides, Sensors (Ultrasonic to measure distance, Accelerometer)

- Matlab for detecting obstacles

- RFID localization infrastructure

- Microcontroller (AT89C51) and a Speaker

- Simulation, template matching

This ETA (Electronic travel aid) can recognize traffic signals from video stream. It can detect, localize and measure obstacle, also their distance using ultrasonic sensor and camera.