



# ISIGHT

## COMPUTER VISION AND ULTRASONIC SENSOR BASED SMART CANE AND GLASSES FOR VISUALLY IMPAIRED PEOPLE



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### ABSTRACT

One of the major physical incapacities around the globe is visual impairment. To provide assistance to these people, we intend to design and implement a state-of-the-art product based on a cutting-edge technology. Our project consists of a smart cane based on ultrasonic sensors and smart glasses with camera, providing obstacle detection, navigation, object identification and facial recognition.

### OBJECTIVE

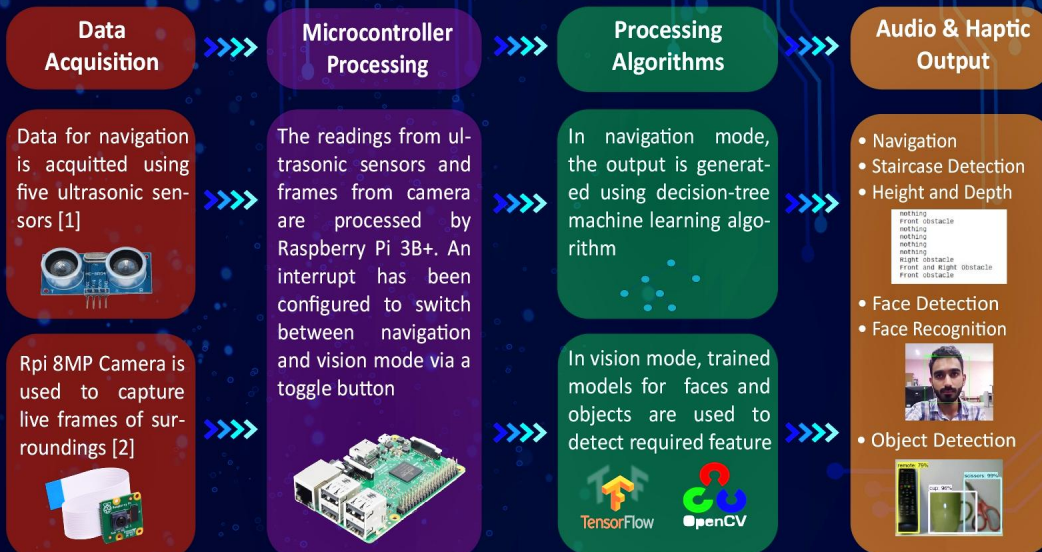
We aim to deliver a product having the following features:

- Detect front, right and left obstacles and perform navigation. Furthermore, estimate the height of the front obstacle.
- Guide and help the user in detecting staircase and potholes.
- Help in smoke and water detection to keep the user safe from hazards.
- Capable of doing facial recognition and object identification.

### FEATURES AND RESULTS



### METHODOLOGY



### SUMMARY

The product proposed is an attempt to make the challenging life of blind people a bit less challenging and reduce their dependency on others by guiding them in daily-life tasks. It will also have a great social and economic impact on the society, upgrading life of millions.

### ACKNOWLEDGEMENTS

Dr. Ubaid-Ullah-Fayyaz | Supervisor

Dr. Kashif Javed | Co-Supervisor

Ali Hassan | Legally Blind Worker in UET Office

### REFERENCES

- [1] AS. Sharma, M. Gupta, A. Kumar, M. Tripathi, and M. S. Gaur, "Multiple distance sensors based smart stick for visually impaired people," in *2017 IEEE 7th Annual Computing and Communication Workshop and Conference (CCWC)*, Jan 2017, pp. 1-5.
- [2] J. Bai, S. Lian, Z. Liu, K. Wang, and D. Liu, "Smart guiding glasses for visually impaired people in indoor environment," *IEEE Transactions on Consumer Electronics*, vol. 63, no. 3, pp. 258-266, August 2017.

### VERSION 1

- Obstacle Detection recognition and audio feedback.
- Featured on Waqt News.

- Final Product
- Startup Model

- Added navigation, facial recognition and audio feedback.
- Featured on Samaa TV.

### MILESTONES ACHIEVED

