**Multi-Functional Blind Stick for Visually Impaired People(2020)**

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One of the biggest problems faced by the visually impaired is navigating from place to place, be it indoors or outdoors. Further, the adverse conditions of the roads make it even more difficult for them to walk outdoors. They have to be alert at all times to avoid consequences like colliding with stable or moving obstacles, ascending or descending staircases, slipping down wet terrain. Also, at times they may be in distress and might want to send an alert message to their relatives or friends about their whereabouts. These problems of blind people can be addressed with the intervention of technology. The proposed solution employs the Internet of Things (IoT) paradigm to provide a medium between the blind and the environment. Several sensors can be used to detect anomalies like obstacles, staircases and wet terrains respectively. The prototype discussed here is a simple, sophisticated and affordable smart blind stick equipped with various IoT sensors and modules. Also, this solution provides a way to send a message about the whereabouts of the user to the concerned people. Adding to the above, a software application is designed to help the acquaintances of the blind to manage the stick's configuration ex: add or delete phone numbers to which alert messages have to be sent. Misplacing the stick indoors can also be a substantial issue. This solution also addresses this problem.

**Site:** <https://ieeexplore.ieee.org/document/9137870>

# Smart Stick for Blind People(2020)

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**Abstract:**

Blind person finds it difficult to detect the presence of any obstacles in their way while moving from one place to another and it is very difficult to find the exact location of the stick if it have been misplaced. Thus, the smart stick comes as a proposed solution to help the visually impaired people in their day to day living without the help of others. In this paper we proposed a solution for the blind people by using an ultrasonic sensor in the blind stick. The instrument stands used to perceive the obstacles at the range of four meters and infrared instrument is castoff to perceive the nearer complications in front of the blind people. Thus the radio frequency transmitter and receiver help the user to find the exact location of the smart stick with the help of buzzer. The vibration motor which is placed in the smart stick gets activated and produces a vibration when any obstacle is detected. This proposed method uses the Arduino UNO as controller. The branch is accomplished of sensing all difficulties in front of the user. The smart stick is of user friendly, quick response, very low power consumption, lighter weight and it is easy to hold and fold by the user.

Site: <https://ieeexplore.ieee.org/document/9074374>

# Low Cost Smart Navigation System for the Blind(2021)

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**Abstract:**

One of the major problems faced by visually impaired people is navigating from one place to another. Commercially available walking canes only serve as obstacle detectors for these people. The need for an economical guidance and navigation system for the blind is long overdue. Existing solutions are highly cost-ineffective, rendering them available only to people on the higher end of the economic strata. A cheap and affordable piece of technology can help the blind commute to their workplace instead of relying on help from random strangers to even commute walkable distances. In this paper, we propose a design for a walking stick to help the visually impaired commute to their livelihood. The proposed solution works on the Internet of Things realm wherein the blind can “communicate” with the environment. This prototype is equipped with an ESP8266, a power source for the development board and coin motors along with a smartphone application, thereby making it accessible for even the working class visually impaired.

Site: <https://ieeexplore.ieee.org/document/9442056>

# Visually Impaired Smart Assistance(2021)

**Abstract:**

The general life of an ordinary man is quite challenging and problematic. Then think about the life of a blind man. They need to depend on others to help them move forward, locate places, and walk without making hit by walls, stones, peoples, vehicles, etc. Not all people are going to help them. In case if the blind person is stuck in some place, their family members and friends are not going to know their exact location to rescue them. Our Idea of a Smart stick is integrated with a voice assistant model to locate and interact with blind people. It also consists of location tracking, staircase prediction, effective particle detection, voice feedback to feel the blind person that there is another person to help them.

Site: <https://ieeexplore.ieee.org/document/9526495>

# An Ultrasonic Sensor-based blind stick analysis with instant accident alert for Blind People(2022)

**Abstract:**

The project is about the blind people who can't move without a stick, so we thought of doing a smart stick for blind people which can sense the obstacles and make buzzer sounds so he can move forward with that, in addition to that, we add fire and water sensors it beeps with different intensities to get attention from it. we can use ultrasonic sensors for a variety of obstacles like a pit, wall, drainages, vehicles, people etc. whenever he forgot the stick through his mobile phone with an app on the home screen can speak to it and the stick responds through voice output like ‘you forgot me here’ with the help of Bluetooth connection. Apart from these things, there may be chances to meet with an accident then we connected vibrate sensor with certain intensity more than usual. If in case the vibrator sensor senses the accident level frequency we set before then it sends msg to relatives through GPS and GSM connected to the Arduino board.

Site : <https://ieeexplore.ieee.org/document/9740786>

Abstract Prepared from Github : <https://github.com/shardik95/SmartStickBlind>