VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANA SANGAMA CAMPUS, BELAGAVI-590018

MINI PROJECT REPORT

OF

SMART WALKING STICK TO ASSIST THE BLIND

Submitted by

NAMRATHA J SHETTY 4AL22IS404

SHARAVI R RAI 4AL21IS048

Under the Guidance

of

PROF.LOLAKSHI P K

Assistant professor

ALVA'S

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI- 574225, KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI- 574225, KARNATAKA

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

CERTIFICATE

Certified that the mini project work entitled ***"THE SMART STICK TO ASSIST THE BLIND"*** *is a bonafide work carried out by*

NAMRATHA J SHETTY	4AL22IS404
SHARAVI R RAI	4AL21IS048

in partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **INFORMATION SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM** during the year 2022-2023 It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

Ms.Lolakshi P K

Project Guide

Dr. SUDHEER SHETTY

Head of Department

ABSTRACT

This abstract introduces a cutting-edge assistive device designed to improve the mobility and navigation of visually impaired individuals—a "Smart Stick" equipped with ultrasonic and vibration sensors. Visual impairment presents substantial challenges to daily life, particularly in terms of mobility and environmental awareness. This technology leverages ultrasonic sensors for obstacle detection and vibration feedback for user guidance, creating an innovative solution to empower individuals with visual impairments.

The Smart Stick incorporates ultrasonic sensors that emit high-frequency sound waves, which bounce off nearby objects and return as echoes. These sensors accurately measure the time it takes for echoes to return, enabling precise calculation of the distance to obstacles in the user's path. When an obstacle is detected, the Smart Stick provides immediate haptic feedback through vibration motors embedded in the handle, allowing the user to perceive the object's location and adjust their path accordingly.

The device's lightweight and ergonomic design ensures comfortable and intuitive use, with the vibrations providing varying levels of intensity to convey the proximity and size of detected objects. Users quickly learn to interpret these tactile cues, making the Smart Stick an effective tool for safe navigation.

Additionally, the Smart Stick can be paired with a mobile application that further enhances its functionality. The app leverages GPS and mapping data to provide turn-by-turn navigation, locate nearby points of interest, and offer real-time updates on the user's location. This integration provides a comprehensive navigation experience, combining the capabilities of ultrasonic sensors with the advantages of digital mapping.

In conclusion, the Smart Stick utilizing ultrasonic and vibration sensors represents an invaluable advancement in assistive technology for visually impaired individuals. By providing real-time obstacle detection through ultrasonic sensors and tactile guidance through vibrations, this device empowers users to navigate their surroundings independently and confidently. The integration of mobile applications and the intuitive design make it a practical and effective tool for enhancing the mobility and autonomy of individuals with visual impairments, ultimately improving their quality of life.