

# **SMART BLIND STICK**

## **A MINI PROJECT REPORT**

*Submitted by*

**ABINESH ROHAN K S (8115U21EE004)**

**BIMAL P (8115U21EE012)**

**HARISH S (8115U21EE015)**

**YOVEL S (8115U21EE056)**

*in partial fulfilment for the award of the degree  
of*

**BACHELOR OF ENGINEERING**

**IN**

**ELECTRICAL AND ELECTRONICS ENGINEERING**



**K. RAMAKRISHNAN COLLEGE OF  
ENGINEERING  
(AUTONOMOUS)  
SAMAYAPURAM, TRICHY**



**ANNA UNIVERSITY  
CHENNAI 600 025**

**MAY 2024**

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**Under the Guidance of**

**Mr. U. RAMANI**

Department of Electrical and Electronics Engineering  
K. RAMAKRISHNAN COLLEGE OF ENGINEERING

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**BONAFIDE CERTIFICATE**

Certified that this project report “**SMART BLIND STICK**” is the bonafide work of **ABINESH ROHAN K S (8115U21EE004), BIMAL P(8115U21EE012), HARISH S(8115U21EE015), and YOVEL S(8115U21EE056)**, who carried out the mini project work under my supervision.

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**SIGNATURE OF INTERNAL EXAMINER**

**NAME:**

**DATE:**

**SIGNATURE OF EXTERNAL EXAMINER**

**NAME:**

**DATE:**



**K. RAMAKRISHNAN COLLEGE OF ENGINEERING  
(AUTONOMOUS)  
Under  
ANNA UNIVERSITY, CHENNAI**



**DECLARATION BY THE CANDIDATE**

I declare that to the best of my knowledge the work reported here in has been composed solely by myself and that it has not been in whole or in part in any previous application for a degree.

Submitted for the Mini Project Viva Voce held at K. Ramakrishnan College of Engineering on \_\_\_\_\_

**SIGNATURE OF THE CANDIDATE**

## **INSTITUTE VISION AND MISSION**

### **VISION**

To achieve a prominent position among the top technical institutions

### **MISSION**

- To bestow standard technical education par excellence through state of the art infrastructure, competent faculty and high ethical standards.
- To nurture research and entrepreneurial skills among students in cutting edge technologies.
- To provide education for developing high-quality professionals to transform the society.

## **DEPARTMENT VISION AND MISSION**

### **VISION**

To emerge as a renowned department for high quality teaching, learning and research in the domain of Electrical and Electronics Engineering, producing professional engineers, to meet the challenges of society

### **MISSION**

**M1.** To establish the infrastructure resources for imparting quality technical education in Electrical and Electronics Engineering.

**M2.** To achieve excellence in teaching, learning, research and development.

**M3.** To impart the latest skills and developments through practical approach along with moral and ethical values.

## **PROGRAM SPECIFIC OUTCOME (PSO)**

**PSO1:** Use logical and technical skills to model, simulate and analyze electrical components and systems

**PSO2:** Integrate the knowledge of fundamental electrical and electronics, power electronics and control systems for the reliability, sustainability and controllability of the electrical systems.

## **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

**PEO1:** Have strong foundation in Electrical and Electronics Engineering to excel in professional career, in higher studies or research.

**PEO2:** Analyze, design and develop various interdisciplinary projects and products, to solve social issues.

**PEO3:** Have professional ethics and effective communication skills with life-long learning attitudes.

## **PROGRAM OUTCOME (PO)**

**PO1 Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2 Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3 Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO4 Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5 Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO6 The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7 Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO8 Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9 Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

**PO10 Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO11 Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12 Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

## COURSE OUTCOMES:

SNO	BLOOM S LEVEL	DESCRIPTION	PO(1..12) & PSO(1..2) MAPPING
C318.1	K3	To expose the students to apply knowledge to solve problems.	PO1, PSO1, PSO2
C318.2	K3	To expose the students to find solutions to complex problems, issues for public and environmental concerns.	PO3, PO7, PSO1, PSO2
C318.3	K3	To expose the students to give conclusions, analyze methods for various scenarios.	PO4, PSO1, PSO2
C318.4	K2	To expose the students to communicate efficiently their technical knowledge and concepts.	PO9, PO10, PSO2
C318.5	K2	To expose the students to self learning and long term learning processes.	PO12, PSO1

## COURSE OUTCOMES VS POS MAPPING (DETAILED; HIGH:3; MEDIUM:2; LOW:1):

SNO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
C318.1	3	-	-		-	-	-	-	-	-	-	-	2	3
C318.2	-	-	3	-	-	-	3	-	-	-	-	-	2	3
C318.3	-	-		3	-	-	-	-	-	-	-	-	2	3
C318.4	-	-	-	-	-	-	-	-	3	3	-	-	-	2
C318.5	-	-	-	-	-	-	-	-	-	-	-	3	2	-

\* For Entire Course, PO /PSO Mapping; 1 (Low); 2(Medium); 3(High) Contribution to PO/PSO



## **ABSTRACT**

The blind stick mini project is a device designed to assist visually impaired individuals in navigating their surroundings. The device utilizes ultrasonic sensors to detect obstacles and provide haptic feedback to the user. By using different vibration patterns, the blind stick can indicate the proximity and direction of obstacles, allowing the user to safely navigate their environment. The device is compact and lightweight, making it easy to carry and use. The blind stick mini project aims to enhance the independence and mobility of visually impaired individuals, enabling them to navigate with confidence and ease.

## ACKNOWLEDGEMENT

We thank the Almighty God, for showing abundance of grace, without his blessings it would not have been possible for us to complete our project.

At this pleasing moment of having successfully completed our project, we wish to convey our sincere thanks and gratitude to our beloved kind Chairman, **Dr.K.Ramakrishnan**, who provided all the facilities to us.

Our sincere gratitude to **Dr.S.Kuppusamy**, Executive Director for his constant encouragement. We are also grateful to our Principal **Dr. D.Srinivasan** for constructive suggestions and encouragement during our project.

We wish to express the profound thanks to **Mr. G. Gabriel Santhosh Kumar**, Assistant Professor and Head, Department of Electrical & Electronics Engineering, for providing all necessary facilities for doing this project.

We whole heartedly acknowledge our deep sense of gratitude and indebtedness to beloved guide **Mr. U. RAMANI**, Assistant Professor, Department of Electrical & Electronics Engineering, for his expert guidance and encouragement throughout the duration of the project.

We extend our gratitude to all the teaching & non-teaching staff members of Electrical & Electronics Engineering Department, **K.Ramakrishnan College of Engineering**, for their kind help and valuable support to complete the project successfully. We would like to thank our parents and friends for their constant support and encouragement throughout this project.

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## **LIST OF ABBREVIATIONS**

<b>ACRONYMS</b>	<b>EXPANSION</b>
<b>GSM</b>	<b>Global System for Mobile</b>
<b>USART</b>	<b>Universal Synchronous Asynchronous Receiver Transmitter</b>
<b>TX</b>	<b>Transmitter</b>
<b>RX</b>	<b>Receiver</b>
<b>LED</b>	<b>Light Emitting Diode</b>
<b>GPRS</b>	<b>General Packet Radio Services</b>
<b>EDGE</b>	<b>Enhanced Data rates for GSM evolution</b>
<b>ETSI</b>	<b>European Telecommunications Standards Institute</b>
<b>MODEM</b>	<b>modulator-demodulator</b>
<b>SIM</b>	<b>Subscriber Identity Module</b>
<b>IMEI</b>	<b>International Mobile Equipment Identity</b>
<b>DTE</b>	<b>Data Terminal Equipment</b>
<b>DCE</b>	<b>Data Circuit-terminating Equipment</b>