

CHESSBOARD SCORE VISUALIZER (CBSV)



A PROJECT REPORT

Submitted by

GOWTHAM. S - 15BMC006

KAARTHIKRUBAN. S - 15BMC019

MUTHUKUMAR. M - 15BMC059

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

MECHATRONICS ENGINEERING

KUMARAGURU COLLEGE OF TECHNOLOGY, COIMBATORE - 641 049

(An Autonomous Institution Affiliated to Anna University, Chennai)

NOVEMBER - 2018

KUMARAGURU COLLEGE OF TECHNOLOGY, COIMBATORE - 641 049

(An Autonomous Institution Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this project report "CHESSBOARD SCORE VISUALIZER" is the bonafide work of "KAARTHIKRUBAN. S, GOWTHAM. S, MUTHUKUMAR.M" who carried out the project work under my supervision.

SIGNATURE

Dr. R. VENKATESAN

HEAD OF THE DEPARTMENT

Mechatronics Engineering

Kumaraguru College of Technology,

Coimbatore 641049

SIGNATURE

MR. K. MURUGESAN

ASSISTANT PROFESSOR

Mechatronics Engineering

Kumaraguru College of Technology,

Coimbatore 641049

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

The International Chess Federation using camera and human interference to visualizing the chess game play, they required a camera to capture the movement and an efficient algorithm to identify the position of the chess pieces in chess board. Radio Frequency Identification (RFID) sensors, tags and microcontroller based system helps to determine the current position of the chess pieces in the chess board by collecting the data from the unique identifier tag and matched with predefined data of that piece which is incorporate with microcontroller, the chess pieces are embedded with concentric circuits having separate IDs and labelled as appropriate tag. This system helps to overcome the need of camera and a human interference also provide a productive approach to projecting the score in chess game.

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without mentioning about the people whose constant guidance and encouragement crowns all effort with success.

We are greatly indebted to our beloved Principal **Dr. J. Senthil**, who has been the backbone of all our deeds.

We express our special gratitude to our final year project coordinator, **Prof.A.Ramkumar**, Assistant Professor-II. Department of Mechatronics Engineering, whose contribution in stimulating suggestions and encouragement, helped me to coordinate my project.

We express our gratitude to **Dr. R. Venkatesan**, Head of the Department, Mechatronics Engineering, Kumaraguru College of Technology for his constant encouragement.

We take immense pleasure to record our heartfelt gratitude to our project guide **Prof.K.Murugesan**, Assistant Professor, Department of Mechatronics Engineering, for his guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

We are grateful to the faculty members of the Department of Mechatronics Engineering, who have helped us in many ways.

S.NO	NAME	ROLL NO	SIGNATURE
1	S.GOWTHAM	15BMC006	
2	S.KAARTHIKRUBAN	15BMC019	
3	M.MUTHU KUMAR	15BMC059	

TABLE OF CONTENT

CHAPTER	TITILE	PAGE NO
NO		
	ABSTRACT	iii
	LIST OF TABLES	vii
	LIST OF FIFURES	viii
	NOMENCLATURE	ix
1	INTRODUCTION	1
	1.1 GENERAL	1
	1.1.1 STRATEGY AND TECHNIQUE	2
	1.1.2 TACTICS FUNDAMENDALS	2
	1.1.3 STRATEGY FUNDAMENDALS	3
	1.1.4 SCORING	4
	1.2 NEED FOR THE STUDY	7
	1.2.1 ALGEBRAIC NOTATION	8
	1.2.2 NAMING THE PIECES	9
	1.3 OBJECTIVES OF THE STUDY	10
2	LITERATURE REVIEW	12
3	MATERIALS AND METHODS	16
	3.1 RFID	16
	3.2 DETECTION METHODS	17
	3.3 MICROCONTROLLER	19
	3.4 METHODOLOGY	20

	3.4.1 ALGORITHM	21
	3.4.2 BLOCK DIAGRAM	22
	3.4.3 INTERFACING PROTOCOL	22
	3.5 SENSOR CONFIGURAION	23
4	RESULT AND DISCUSSIONS	25
	4.1 HARDWARE SETUP	25
	4.2 SUMMARY	27
	CONCLUSION AND FUTURE WORK	28
	REFERNCES	29

LIST OF TABLES

TABLE	TITLE	PAGE
1.1	SCORING SYSTEM	6
1.2	CHESS PIECE VALUES	10

LIST OF FIGURES

FIGURE	JRE TITLE	
1.1	CHESS BOARD	8
1.2	ALGEBRAIC NOTATIONS	15
3.1	RFID TAG	16
3.2	RFID READER	17
3.3	PASSIVE INDUCTION METHOD	18
3.4	PASSIVE EM WAVE METHOD	18
3.5	ACTIVE METHOD	19
3.6	MICROCONTROLLER	20
3.7	BLOCK DIAGRAM	22
3.8	MASTER SLAVE COMMUNICATION	23
3.9	SPI INTERFACES	23
3.10	FUNCTIONAL DIAGRAM	24
4.1	PCB DESIGN SCHEMATICS	26

NOMENCLATURE

ABBREVIATIONS

RFID Radio Frequency Identification

AN Algebraic notation

FIDE World Chess Federation

USB Universal Serial Bus

SPI Serial Peripheral Interface

MISO Master Input Slave Output

MOSI Master Output Slave Input

RF Radio Frequency