VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"DESIGN OF MEMORY INTERFACE AND PROGRAMMER FOR FeRAM"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

Name	USN
SHRUTHI I T	4AL15EC083
SREECHARAN B R	4AL15EC085
VASANTH KUMAR M	4AL15EC099
GOWDA RACHITA B V	4AL16EC403

Under the Guidance of

Dr. Praveen J

Professor and Dean (Academics)

Department of E&C Engineering

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

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MOODBIDRI – 574 225

(Affiliated to VTU, **BELAGAVI**)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled "**DESIGN OF MEMORY INTERFACE AND PROGRAMMER FOR FeRAM**" *is a bona fide work carried out by*

SHRUTHI I T	**4AL15EC083**
SREECHARAN B R	**4AL15EC085**
VASANTH KUMAR M	**4AL15EC099**
GOWDA RACHITA B V	**4AL16EC403**

in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2018–2019. 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.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Dr. Praveen J	**Dr. D V Manjunatha** **H. O. D.** Dept. Of Electronics & Communication Alva's Institute of Engg. & Technology Mijar, MOODBIDRI - 574 225	**Dr. Peter Fernandes** PRINCIPAL Alva's Institute of Engg. & Technology, Mijar, MOODBIDRI - 574 225, D.K

EXTERNAL VIVA

Name of the Examiners	Signature with date
1. Dr. D.V. MANJUNATHA	13/06/19
2. Ashoka-A	13/6/19

ABSTRACT

The On-board computer of satellite has a PROM (Programmable Read only Memory) which is volatile. PROM in On Board Computer is used to store the Program data for the operation of the various sensors and devices in satellite. Since Software requires constant improvisation, using PROM to store the program data is not feasible. A unique approach is proposed to replace PROM in On-board computer. A Memory interface is designed for the targeted FeRAM for storing the program data. FeRAM is a non-volatile memory and has faster access time compared to PROM. Memory Interface circuit is designed using the OrCAD Capture tool with the proper analysis of power requirements. FeRAM is programmed using the Microsemi smart fusion Board. Libero SOC and Soft Console software are used to program the FeRAM. For embedded systems, being able to run native TCP/IP makes it possible to connect the system directly to an intranet or even the global Internet. FeRAM can be programmed by a remote PC connected to internet. To authenticate the data, Checksum is verified after writing the data into FeRAM.

FeRAM has faster access time compared to PROM and high data retention time. This will make the FeRAM ideal to store the program data. The memory interface circuit derives its signal from On-board computer through 78 pin connector and it is designed with the concern of safety of the On-board computer. This unique approach to store program data in FeRAM makes it feasible to use in On-board computer.