VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"IMPLEMENTATION OF 16x16 STATIC RANDOM ACCESS MEMORY"

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

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

A+ Accredited by NAAC & NBA (ECE & CSE)

MOODBIDRI – 574 225.

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CERTIFICATE

Certified that the project work entitled "**IMPLEMENTATION OF 16x16 STATIC RANDOM ACCESS MEMORY**" *is a bona fide work carried out by*

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

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ABSTRACT

Computer memory is used by electronic digital computers and consists of data and instructions that are either temporarily or permanently stored. Random Access Memory (RAM), which allows for immediate access to the memory for both reading and writing operations, is the reverse of serial access memory. A significant advancement in technology has produced a wealth of knowledge regarding the level of complexity that may be built into a single chip. The key characteristics of any electronic component have come to be defined as small feature sizes, low power consumption, low costs, and high performance. All of these factors have pushed designers into the sub-micron space, which puts leakage characteristics in the spotlight. The fact that many electrical components, particularly digital ones, are built to store data emphasizes the importance of memory.

This work is focused on software implementation of 16X16 Static Random Access Memory (SRAM) to reduce the power consumption in the memory. In this research, a 6T SRAM cell-based 16X16 SRAM array is created and its overall power consumption is ranked. The proposed 16X16 SRAM array uses 6T SRAM cells, which use less energy than the more widely used 7T SRAM array. A supply voltage of 0.7 V is taken into account while building a whole SRAM array. A 6T SRAM consumes 50.46 μW in read operation and 410 μW in write operation than in 7T SRAM. Both read and write operations in 6T SRAM have undergone an analysis of transient responses.

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