**SAVEETHA ENGINEERING COLLEGE**

**DEPARTMENT OF ELECTRONICS&COMMUNICATION ENGINEERING**

**19EC702 PROJECT WORK (2022-2023)**

**Title of the Project: SD CARD INTERFACE USING FPGA ON MULTIMEDIA APPLICATIONS**

**Project Members: (**maximum number is limited to 3)

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**Aim of the Project**:

* SD memory card interface could support basic commands in SD 2.0 physical layer specification, decode and respond to host commands automatically as well as access data with 4-bit SD mode protocol using Strontium.

**Scope of the Project**:

* SD card has a native host interface apart from the 4-bit SD mode for communicating with the master devices. The microcontroller is used as addressable sector on which read/wrote functions are possible.

**Internal**

Supervisor name and Supervisor signature

Designation

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Approval of HOD/Authorized signatory

**Abstract of the Project**

* The Field Programmable Gate Array (FPGA) devices are being used especially in applications that require real-time data processing, for example in communication systems. To meet the memory requirements for FPGA systems, the onboard memory can be used, but it cannot be expanded easily by adding some cards. More useful are Secure Digital (SD) cards that are detachable and can be replaced easily. We have designed and implemented a FPGA controller that allows writing and reading SD cards using the 4-bit SD protocol. The main objective is to provide a storage solution in FPGAs, to store large files on large capacity, cheap, portable and easy to use storage devices. Using the 4-bit SD protocol, the system can access multiple SD cards with a minimum usage of data lines from FPGA. The hardware design and implementation are developed using Verilog HDL language. The FPGA controller was tested with more SD cards and the results shown that the system can run without errors.

**Signature of the Supervisor Signature of the Project Coordinator**

**PROJECT WORK**

**PROJECT WORK FOR THE YEAR (2022-2023)**

**ZEROTH REVIEW APPROVAL**

Date of Review:

Supervisor Remarks:

Seminar Presentation Material was shown by the students’ on\_\_\_\_\_\_\_\_\_\_\_. I have gone through the progress of the work and the presentation. The suggestions made by me were incorporated in the presentation.

**RECOMMENDED FOR PRESENTATION Supervisor Signature**

**ZEROTH REVIEW EVALUATION SHEET**

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| **Sl.No.** | **Name of the Student** | **Register No.** | **Mark Allocation** | | | | | |
| **Team performance** | | | **Individual performance** | | **Total** |
| **Collection of Literature** | **Objective / Scope** | **Plan of Execution** | **Presentation** | **Insight on project area** |
| **10** | **10** | **30** | **30** | **20** | **100** |
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**Remarks of the Evaluators (Comments and Major Weaknesses Identified):**

**Signature of the Evaluators Project Coordinator**

**FIRST REVIEW APPROVAL**

Date of Review:

Supervisor Remarks:

Seminar Presentation Material was shown by the students’ on\_\_\_\_\_\_\_\_\_\_\_. I have gone through the progress of the work and the presentation. The suggestions given in the zeroth review and by the supervisor were incorporated in the presentation.

**RECOMMENDED FOR PRESENTATION Supervisor Signature**

**FIRST REVIEW EVALUATION SHEET**

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| **Sl.No.** | **Name of the Student** | **Register No.** | **Mark Allocation** | | | | | |
| **Team performance** | | | **Individual performance** | | **Total** |
| **Literature review** | **Experimental work** | **Observation** | **Knowledge on work executed** | **Insight on expected outcomes** |
| **10** | **20** | **20** | **30** | **20** | **100** |
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**Remarks of the Evaluators (Comments and Major Weaknesses Identified):**

**Signature of the Evaluators Project Coordinator**

**SECOND REVIEW APPROVAL**

Date of Review:

Supervisor Remarks:

Seminar Presentation Material was shown by the students’ on ------------------ . I have gone through the progress of the work and the presentation. The suggestions given in the first review and by the supervisor were incorporated in the presentation.

**RECOMMENDED FOR PRESENTATION Supervisor Signature**

**SECOND REVIEW EVALUATION SHEET**

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| **Sl. No.** | **Name of the Student** | **Register No.** | **Mark Allocation** | | | | | | |
| **Team performance** | | | **Individual performance** | | | **Total** |
| **Results and discussion** | **Conclusion / future scope** | **Organization of the project draft report** | **Contribution/ presentation** | **Individual knowledge on the field of work** | **Insight on Results and discussion** |
| **20** | **5** | **25** | **20** | **10** | **20** | **100** |
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**Remarks of the Evaluators (Comments and Major Weaknesses Identified):**

**Signature of the Evaluators Project Coordinator**

**THIRD REVIEW APPROVAL**

Date of Review:

Supervisor Remarks:

Project report/Seminar Presentation Material was shown by the student’s on\_\_\_\_\_\_\_\_\_\_. I have gone through the progress of the work and the presentation. The suggestions given in the second review and by the supervisor were incorporated in the presentation. Subsequently I have verified the project report chapter wise and it is prepared as per Anna University guidelines.

**RECOMMENDED FOR PRESENTATION Supervisor Signature**

**THIRD REVIEW EVALUATION SHEET**

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| **Sl. No.** | **Name of the Student** | **Register No.** | **Mark Allocation** | | | | | | | | |
| **Team performance** | | | | | **Individual performance** | | | **Total** |
| **Literature review** | **Experimental work – results and discussion** | **Limitations / contributions/ future scope of work** | **Organization of Project report** | **Societal Relevance** | **Contribution/ presentation** | **Individual knowledge on the field of work** | **Insight of conclusion** |
| **5** | **20** | **10** | **10** | **5** | **20** | **20** | **10** | **100** |
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**Remarks of the Evaluators**

1. **Can this work be published in conference/Journal : YES / NO**
2. **Can this work be patented : YES / NO**
3. **Can this work be further enhanced for project proposal : YES / NO**

**\**

**Signature of the Evaluators Project Coordinator**

**CONCLUSION OF THE PROJECT**

* Thus, we conclude our proposed work that an FPGA controller allows SD card writing and reading with Strontium 4-bit SD mode using Spartan 6 FPGA and Artix-7 which was executed in Xilinx ISE software tool. Easily expandable storage system add number SD cards contain sharing the same clock and data signals different chip select signal for each card was suggested the architecture involves accessing each card in sequence, but it is allowed.

Signature of the Student:



3**. Signature of the Supervisor**

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| **SAVEETHA ENGINEERING COLLEGE** | | | | | | | | | |
| **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING - PROJECT OUTCOME ATTAINMENT** | | | | | | | | | |
| **Sub. Code & Name:** | | **19EC702 Project Work Phase 1** |  | **Odd Sem. - (2022-23)** | | | | | |
| **Year and Sem. :** | | **IV Year and VII Sem.** |  |  |  |  |  |  |  |
|  | |  |  |  |  |  |  |  |  |
| **Sl.No.** | **Register No.** | **Name of the Student** |  | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** | **UNIV** |
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| **COURSE CODE:** | | 19EC702 | **SEMESTER:** | 7 | **Year of study**: 2022-23 |
| **COURSE NAME:** | | Project Work – Phase 1 | | | |
| At the end of the course the students will be able to:  On Completion of the project work students will be in a position to take up any challenging  practical problems and find solution by formulating proper methodology. | | | | | |
| CO1 | Demonstrate the role of Electronic Engineers in the Design, Processing and Testing stages of product / system with ethical responsibility. | | | | |
| CO2 | Approach, identify, demonstrate and solve the technical problems using various available modern tools and techniques | | | | |
| CO3 | Outline the past, present and expected performance of a product / system in  Engineering practice, knowledge of safety and environmental standards, cost  estimation, scheduling of project, team management and ethical practice. | | | | |
| CO4 | Develop new product / system / Provide scientific outcome in association of multidisciplinary team which is useful to society, cost effective and understand the importance of rendering service after sales. | | | | |
| CO5 | Analyze, summarize, infer and communicate their chosen domain problems and results optimistically by means of oral presentation and written reports. | | | | |