Maalgudi TechnoLabs

+91 99453 46124
admin@malguditechnolabs.com
malguditechnolabs.com

October 28, 2024

To:
The Head of Department
Dept. of ECE, RVCE
Bengaluru 560059

Maalgudi TechnoLabs is a student-led and student-driven organization focused on "Learning Through Knowledge Sharing." We are dedicated to promoting technological innovation and education. We are writing to propose a Skill Lab session for the students of 5th semester B.E., ECE on Embedded Systems using FPGA, in collaboration with the Architecture and System Design Lab, Department of ECE, RVCE.

This session integrates theoretical as well as practical knowledge on FPGAs, specifically the Xilinx Zynq-7000 series. This session aims to equip students with hands-on experience in building embedded applications using Zynq FPGAs and implementing the AXI protocol, both of which are widely used in various industries today.

Objectives

1. Introduce Zynq FPGAs and AXI Protocol: To provide foundational knowledge on Zynq FPGA architecture and the AXI protocol, which enables efficient communication between the processor and programmable logic.
2. Hands-on Project Development: A primary focus on project-based learning will enable students to design and implement an embedded application using Zynq FPGAs and AXI, encouraging a practical understanding of both technologies.
3. Industry-Relevant Skills: Equip students with skills and knowledge that are applicable to current industry practices, emphasizing real-world applications and problem-solving.

Session Structure

1. Introduction to Zynq FPGAs, AXI Protocol, and Embedded Systems: A comprehensive overview of Zynq FPGA architecture, its integration of programmable logic and processing systems, and the role of the AXI protocol in facilitating data exchange and improving system performance.
2. Embedded Application Development with Zynq and AXI: Step-by-step guidance on building a project that demonstrates embedded application functionality using the AXI protocol for interconnection, incorporating practical skills applicable in industry.
3. Project Implementation: Students will work on an individual or group project to apply their learnings, covering system design, AXI-based configuration, and hardware-software integration. The outcome will be a tangible project demonstrating a fully operational embedded application.

Learning Outcomes

- Technical Knowledge: Students will gain an understanding of Zynq FPGAs and the AXI protocol, including architecture, configuration, and applications in embedded systems.
- Practical Experience: Through a hands-on project, students will develop the practical skills needed to build and implement embedded applications using Zynq FPGAs and the AXI protocol.
- Industry Alignment: Knowledge gained in this session reflects current industry trends, providing students with relevant skills that enhance their employability.

Renumeration

To ensure a high-quality learning experience, we kindly request **INR 350 per person per hour** for our five-member team from Maalgudi TechnoLabs. This support would help cover the costs of resources, preparation time, and other logistical needs, enabling us to provide an impactful and enriching session for the students. We sincerely appreciate your consideration of this request.

Conclusion

This Skill Lab session on Zynq FPGAs and AXI Protocol offers a unique opportunity for students to engage in project-based learning that directly applies to today's technology landscape. Participants will not only develop foundational knowledge but also a practical skill set that can be leveraged in future academic and professional pursuits. This preliminary foundation can be helpful in their ground work for future minor and/or major projects.

Regards,

Pratham Gowtham
CEO, Maalgudi Technolabs LLP