RE report#1 - Professor Kurian

Memo: Nupur#1

Title: PUF introduction and PSOC creator tool understanding

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Summary

Over the past week, I installed the PSoC Creator tool and familiarized myself with its features. This included understanding the workflow, such as building schematics, mapping ports, and using the build process to generate files. Additionally, I created a sample LED blinking project to test the basic functionalities. For the PUFs understanding part, I went through three NPTEL lectures and a research paper titled "Physical Unclonable Functions: A Tutorial". I also explored the working of UART in PSoC Creator.

Details

PSoC Creator Installation and Familiarization

- Installed PSoC Creator and explored its interface.
- Learned the steps involved in creating a project: building the schematic, mapping ports, and initiating the build process to generate necessary files.
- Understood the process of writing and modifying main.c, including function instantiation.
- Developed a sample LED blinking project to test the environment setup.

Understanding PUFs

- Reviewed three NPTEL lectures on Physical Unclonable Functions (PUFs): https://www.youtube.com/watch?v=woEUksF7R9o, https://www.youtube.com/watch?v=Nv4GUbVIPd4, https://www.youtube.com/watch?v=NrMZ903j3ZA .
- Studied the Physical Unclonable functions and applications: A Tutorial paper, focusing on different types of PUFs, their security implications, and applications in embedded systems.

Exploring UART in PSoC Creator

- Understanding how UART communication works in PSoC Creator.

- Analyzed how data transmission and reception can be implemented in embedded applications.

Conclusion

This week, I successfully set up PSoC Creator, implemented a sample LED blinking project, and deepened my understanding of PUFs and UART communication. For the upcoming week, I plan to program the PSoC device and extract key data to further analyze the functionality of PUFs.

END