

TECHNOLOGY DEVELOPMENT PROGRAM SMART CITIES AND SOCIETIES

PUF Guard

Secure Key Generation through Physical Unclonable Function (PUF)

PUF Guard leverages RFID technology and Physical Unclonable Function (PUF) for heightened authentication, ensuring a robust and secure system for identity validation and access authorization

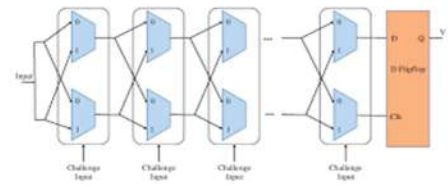
Issue Being Addressed

- ▶ Implementation of arbiter PUF on FPGA
- ▶ Challenge response pair generation using Physical Unclonable Functions (Arbiter PUF)

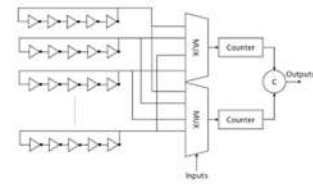
Key Feature of the Technology/Product /App Which is Being Developed

- ▶ FPGA is used for implementation
- ▶ VHDL and Verilog code for arbiter PUF

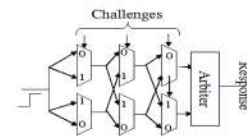
Arbiter PUF



Bi-Ring Oscillator PUF



CMOS Arbiter PUF



Impact & Benefits

- ▶ The generated cryptographic key or identifier from the Arbiter PUF can be used for various security applications, including:
 - ▶ Device Authentication
 - ▶ Secure Key Generation
- ▶ Reduced energy consumption, minimized waste, and improved resource efficiency contribute to environmental benefits of Arbiter PUF

Team

- ▶ **Ms. Neha Maheshwari**
Ph.D. Scholar
- ▶ **PI: Prof. Santosh Kumar Vishvakarma**
Dept. of Electrical Engg.

IIT Indore

Targeted Customers & End Users

- ▶ Rackbank



Commercialization Status

- ▶ PCB is designed