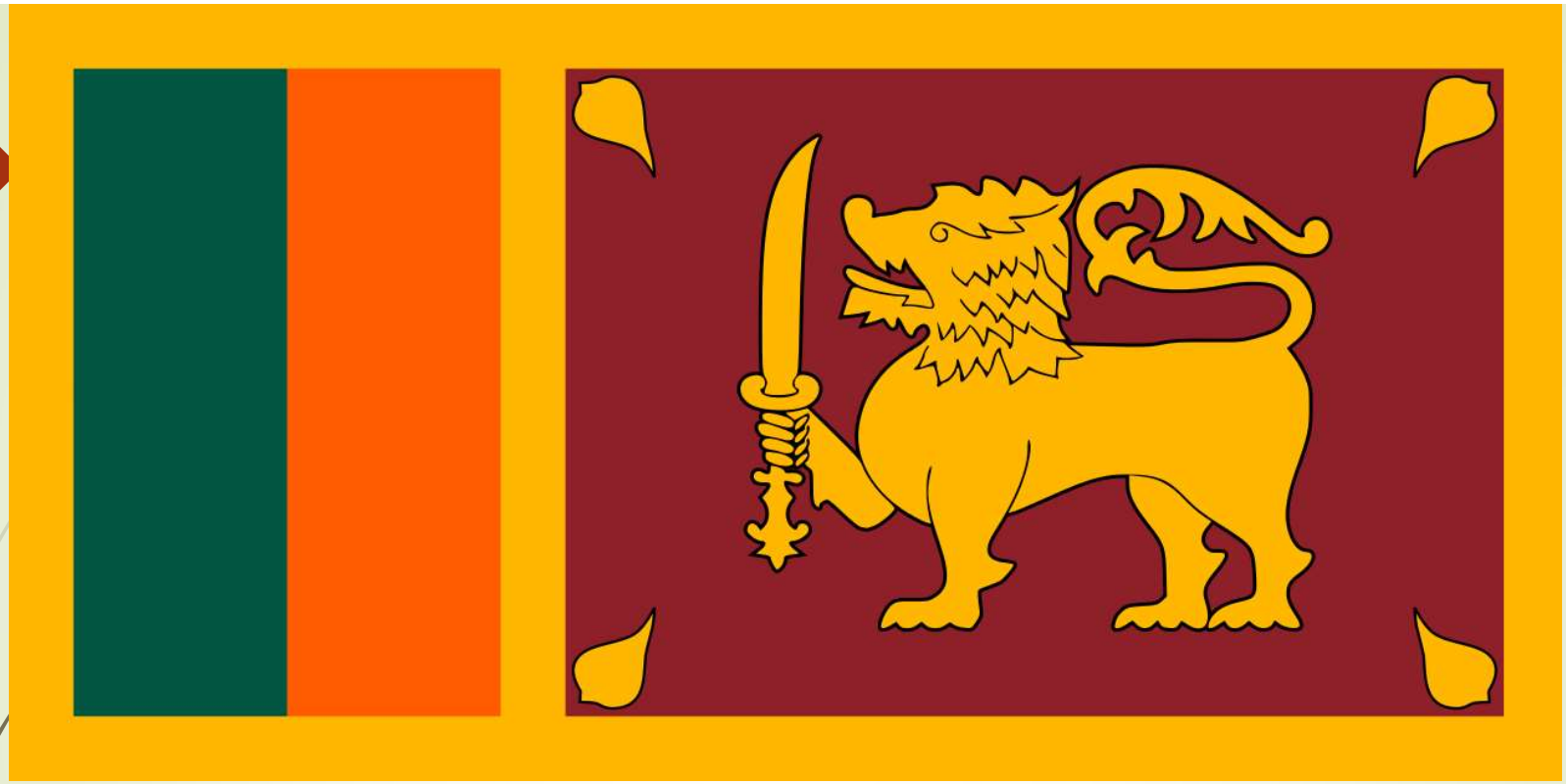
Joint ICTP-IAEA School on FPGA-based SoC and its Applications for Nuclear and Related Instrumentation



Dilum Rukshan Perera

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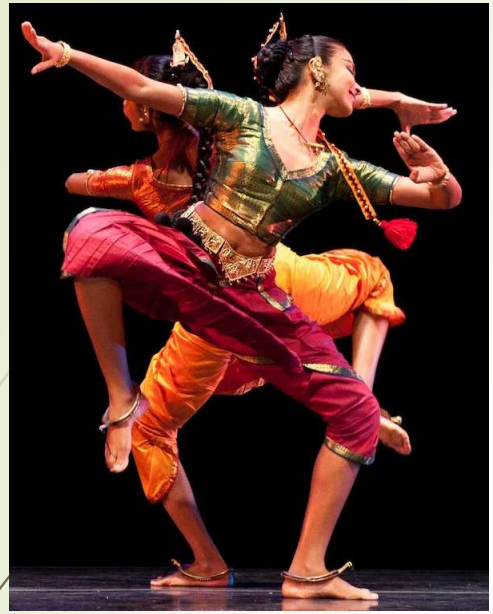

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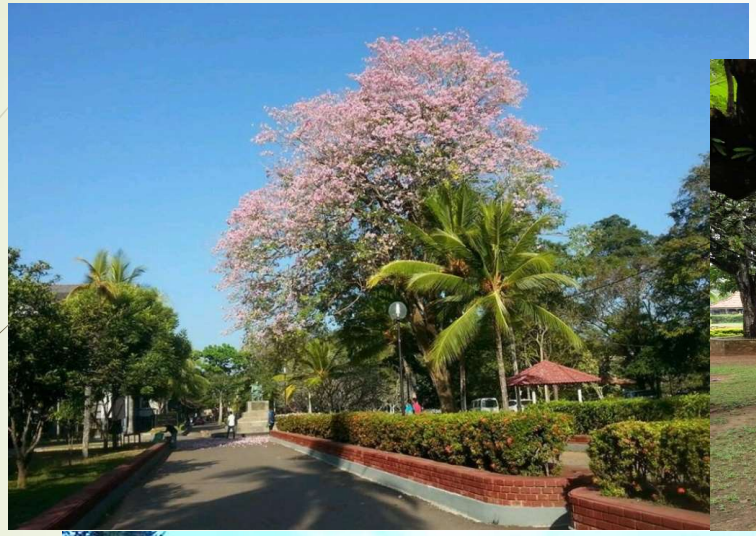


My research Interest in

- **Embedded Systems**
- **Design of Scientific Instrumentation**
- **Sensor Network and IoT**

Interested Topics in the workshop (To me)

- **System on Chip Architecture and Design Methodology**
- **Design of Custom IPs**
- **C for Embedded Systems**
- **Hardware and Software Integration**
- **Use Machine Learning and Image Processing Algorithms in FPGA**

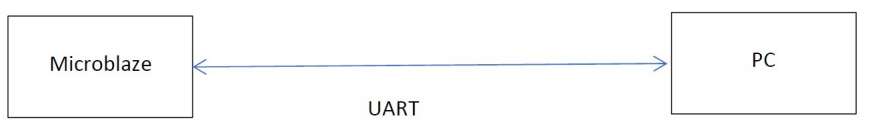
Personal improvement throught the Practical session

- **IAEA Group 3 : Data Acquisition System**
- **Used board : CMOD-A7**

IAEA Practical sessions

Exercise 1 **Design an IP core**

Exercise-2 **Setup communication between MicroBlaze and PC using UART protocol**



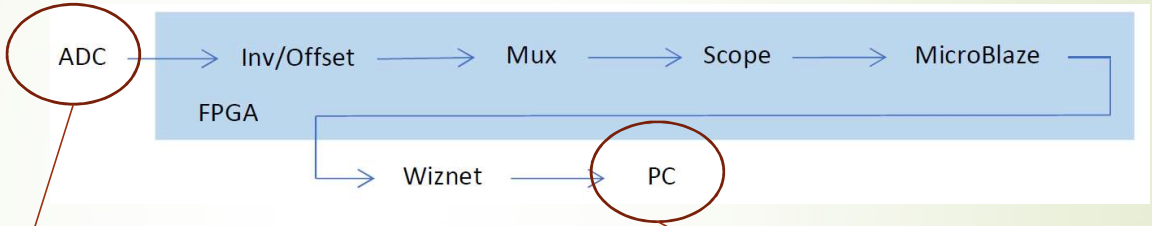
Exercise-3

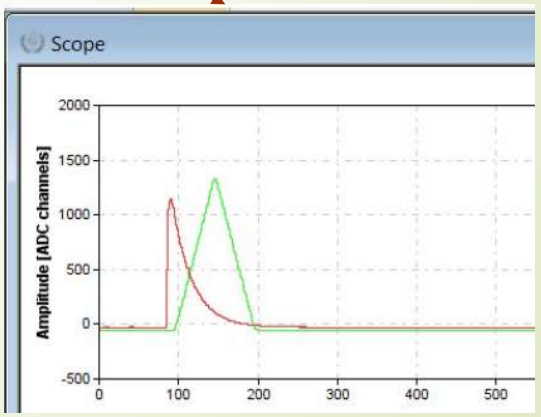
- **Place the Wiznet W7500P in-between PC and SoC**
- **controlling and monitoring of the IP cores through PC machine .**

IAEA Practical sessions

Exercise 4

Implement simple data processing of the ADC data and two-channel oscilloscope inside the FPGA



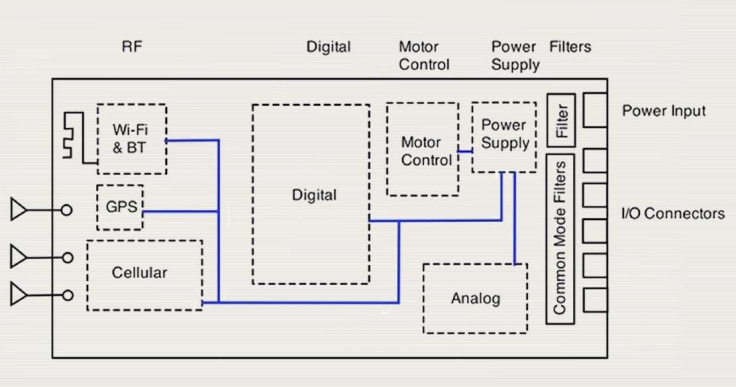


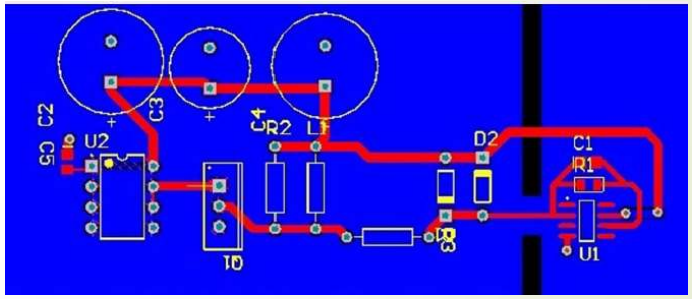
IAEA Practical sessions

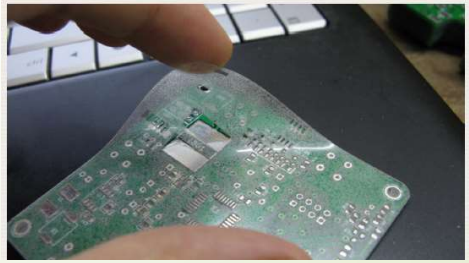
Exercise-5-7 Add different IP cores to the data processing system and improve the accuracy

IAEA Practical sessions

Design Principles technique and Methodologies of Hardware Components







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