

Face recognition using Local Binary Patterns Histograms (LBPH) on an FPGA-based System on Chip (SoC)

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Face Recognition

- Evolution and Importance



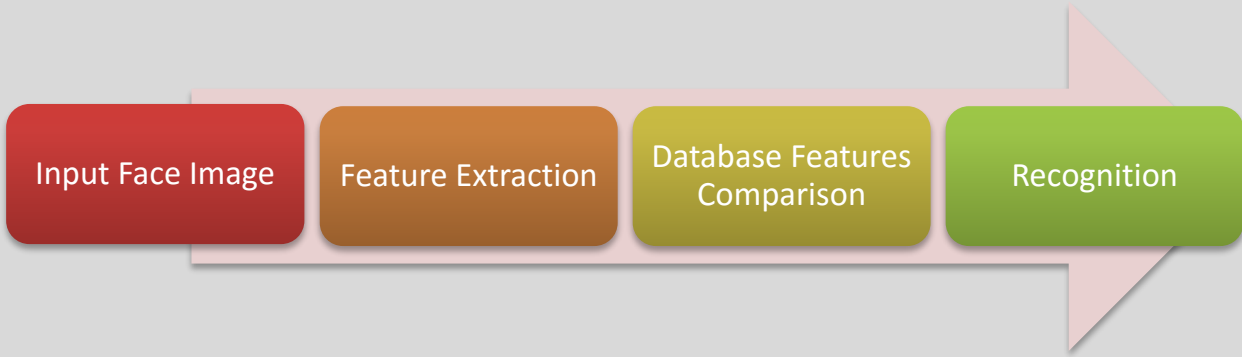
- Challenges

Real Time Execution

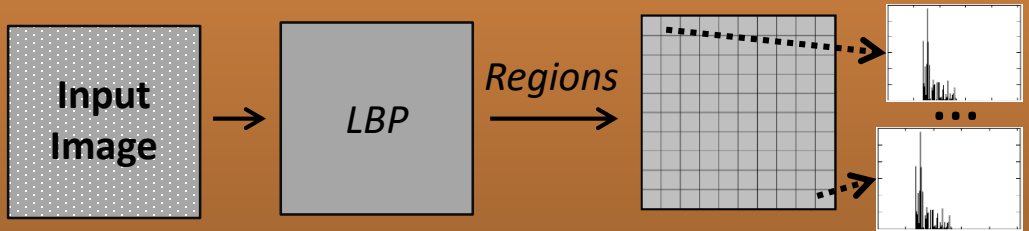


High Recognition Accuracy





• **LBPH**

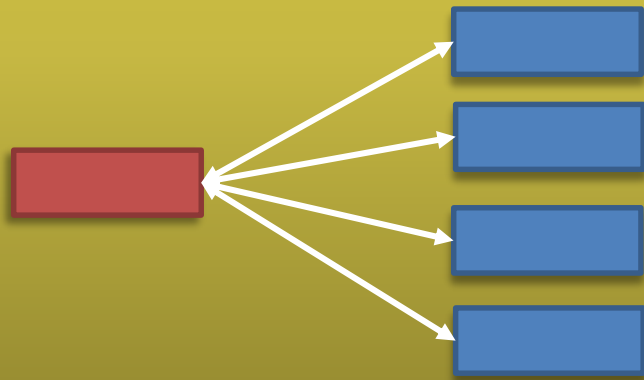


WHY LBPH?

- HIGH ACCURACY**
- SMALL DATABASE**
- SIMPLE COMPUTATIONS**

• **Manhattan Distance**

$$\Delta = |x - y|$$



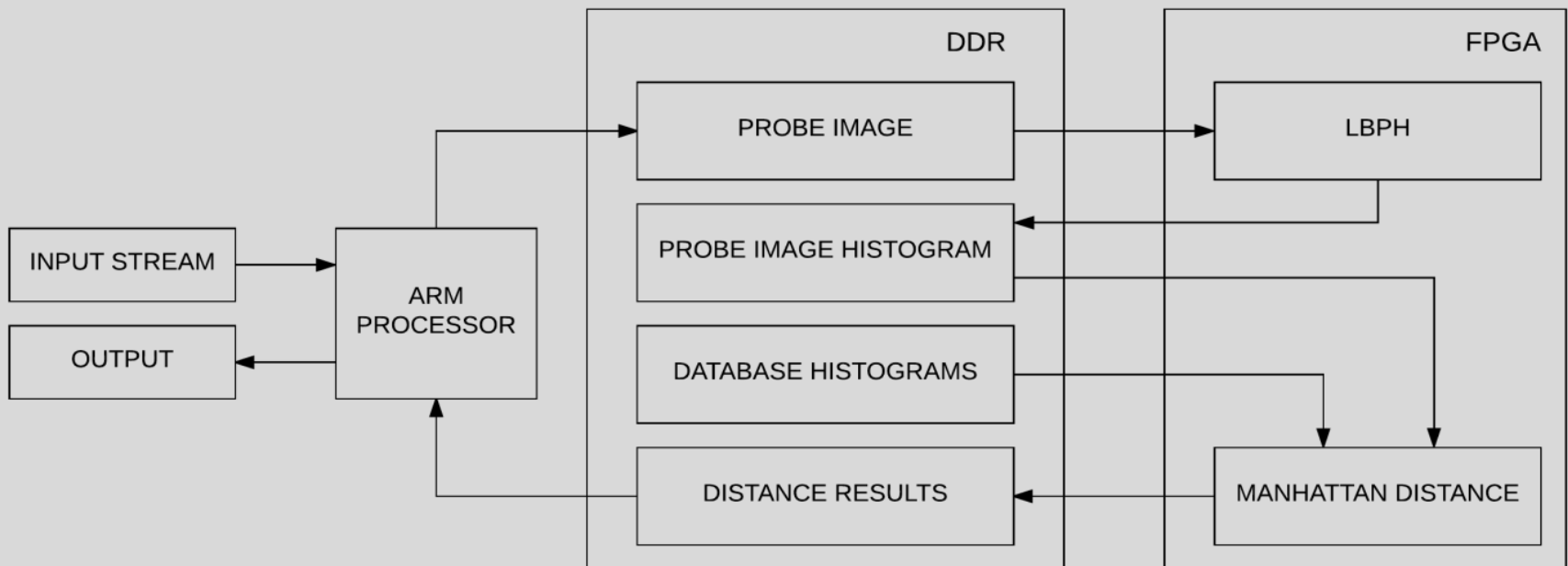
Implementation

- Platform



ARM® + FPGA

- System Overview



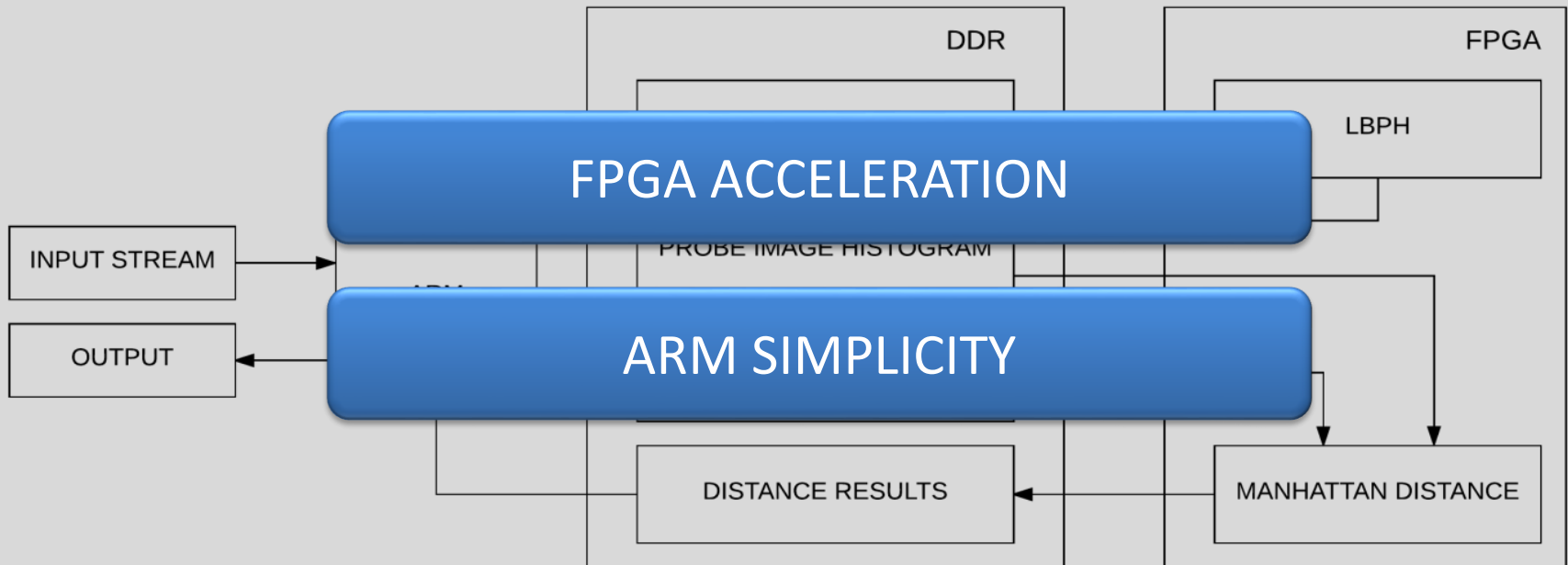
Implementation

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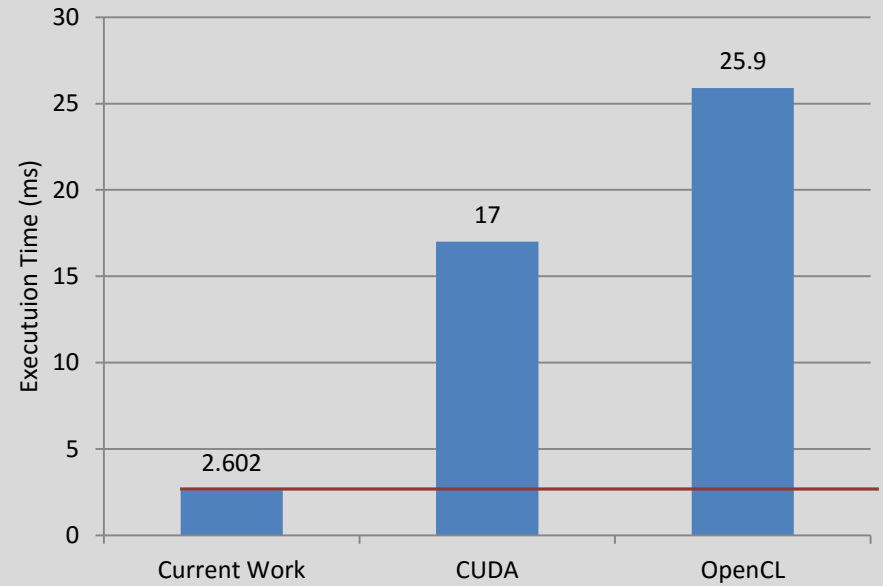
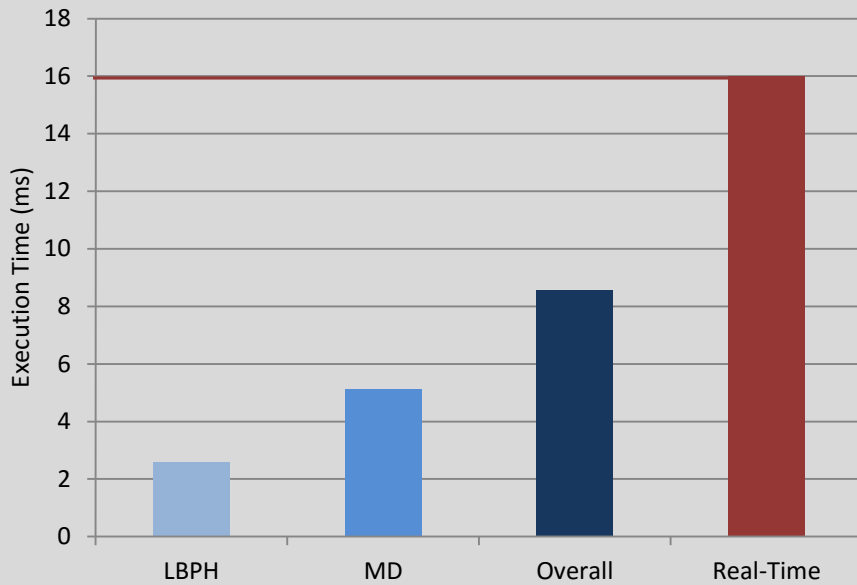
ARM[®] + FPGA

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Results

1. Execution Time



2. Accuracy

Test Images	CR	FR	Accuracy
300	238	62	78.3%

3. Utilization

Type	Used	Utilization
LUT	8606	11%
FF	9668	6%
BRAM	113	42%

Thank you!

