



FPGA-based:

Surveillance System

Group 1

Jia Yuan Chen, Han Jie Qiu, Xinran Rui

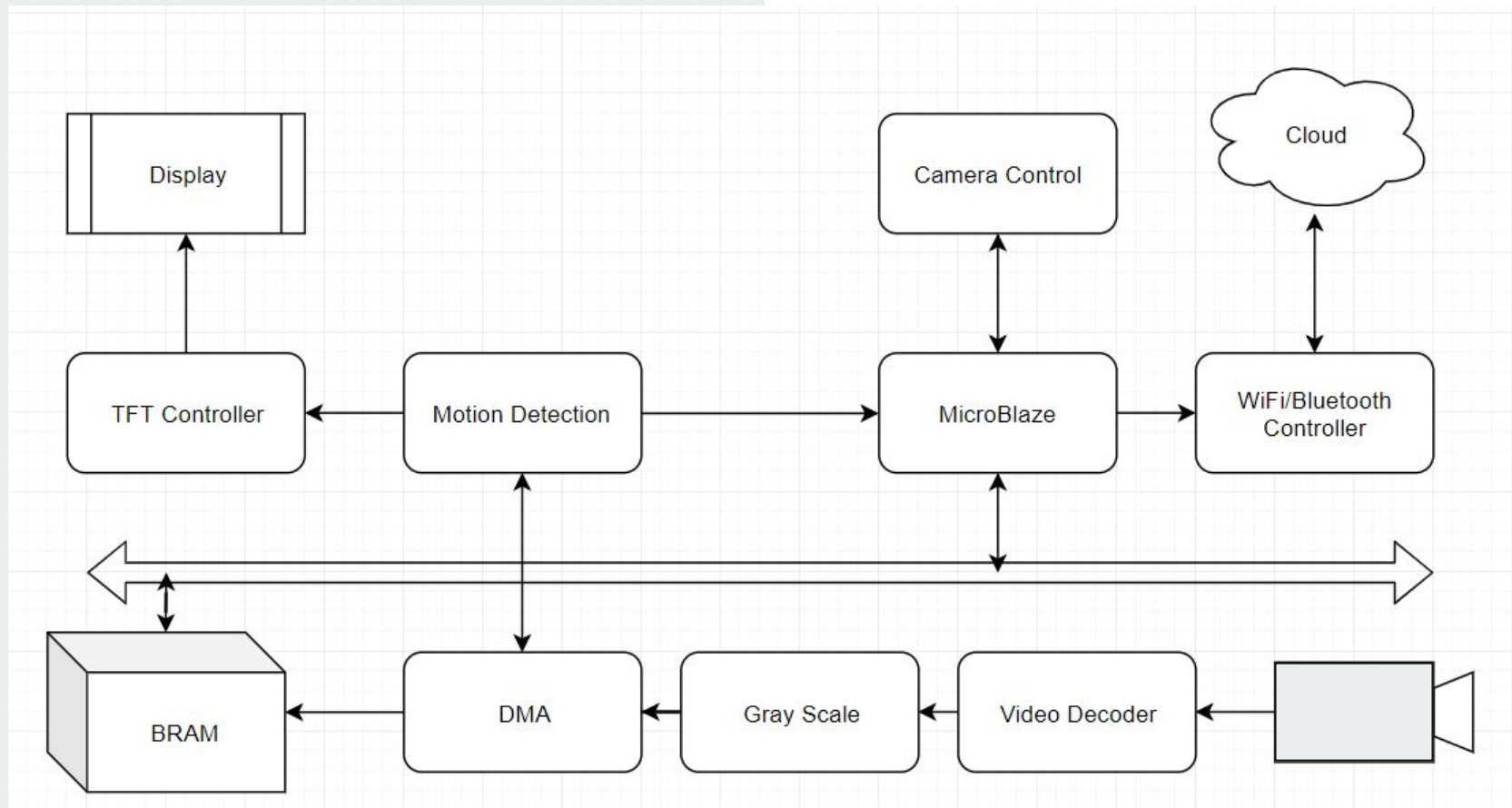


FPGA-based Surveillance System

Features:

- Motion Detection
- Alarm Notification
- Over-the-network Video Streaming
- Camera Angle Adjustment





Major Design Changes



Removed IP:

1. Camera Angle Control
2. Digilent WiFi Controller
3. Xilinx TFT Controller

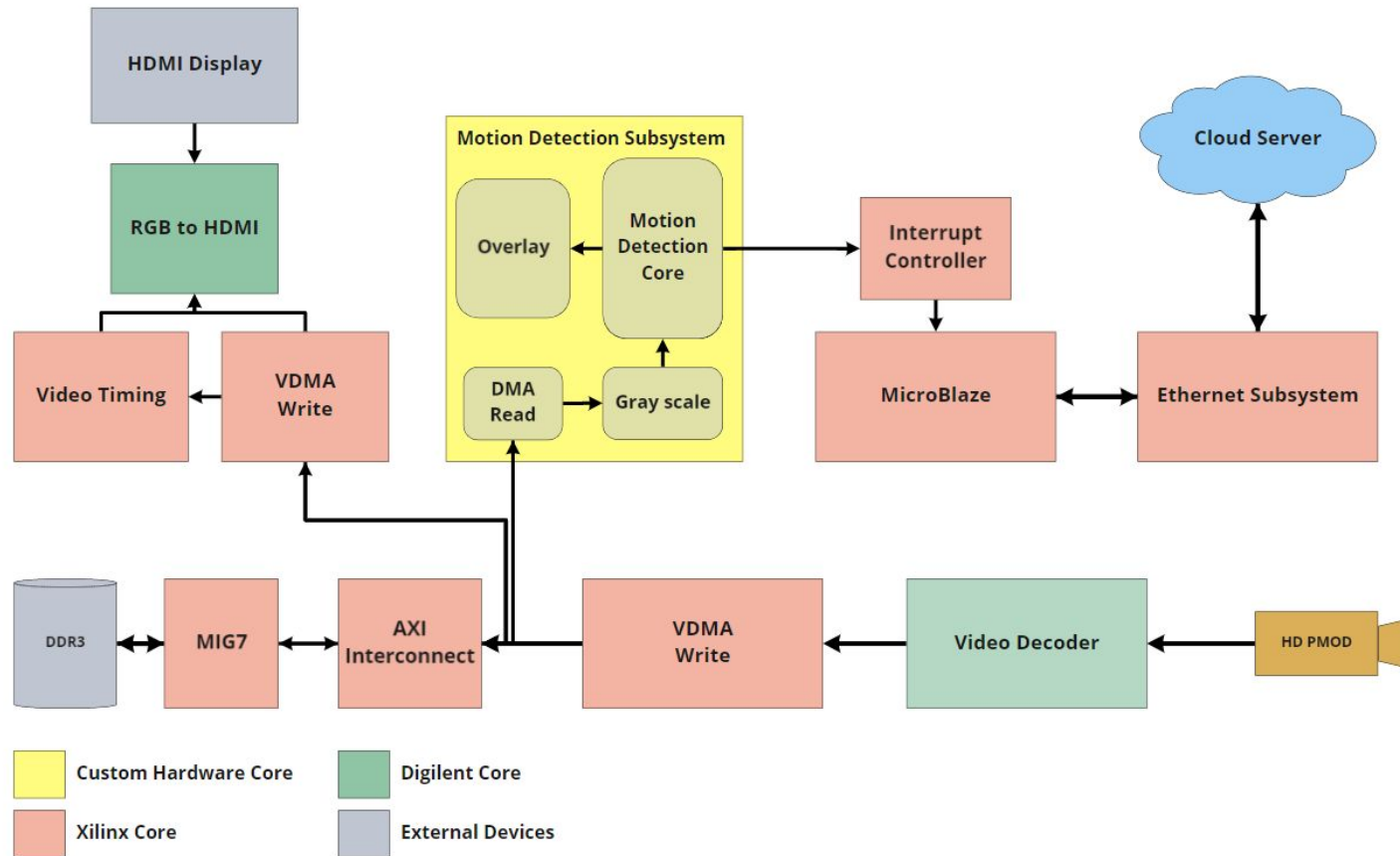
Added IP:

1. HDMI Controller

Platform Changes:

1. Switched to Nexys Video
2. Switched to HD PMOD Camera

New System Overview



Challenges So Far:



Resource Utilization:

Nexys 4 DDR was too small for video applications

Network Throughput:

TCP network connection was too slow for any video streaming over the network

Integration:

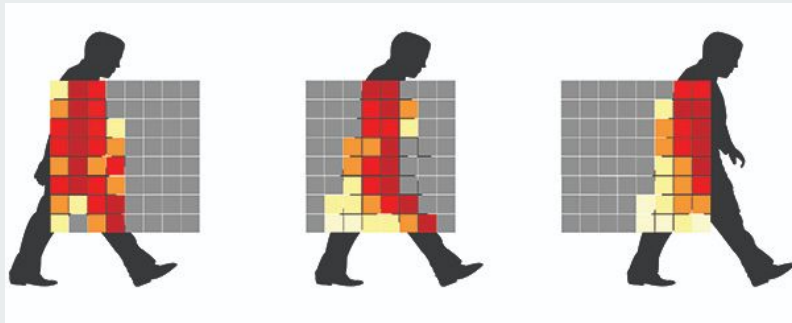
Network Subsystem

+

Motion Detection Subsystem

+

HDMI Display and HD PMOD Camera Subsystem



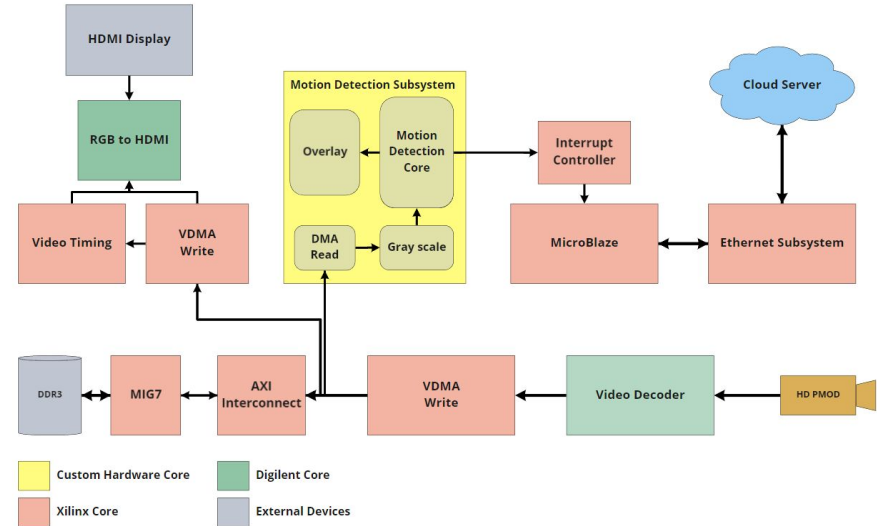
Expected Overlay Output

What is left to do?

1. Interrupt based motion detection subsystem
2. UDP based network transfer
3. Motion detection overlay on video feed to show areas of high activity

What did we demo ?

1. Live camera feed on local display through HDMI
2. Photo capture and transmission to remote server
3. Polling based motion detection subsystem onboard





Questions?