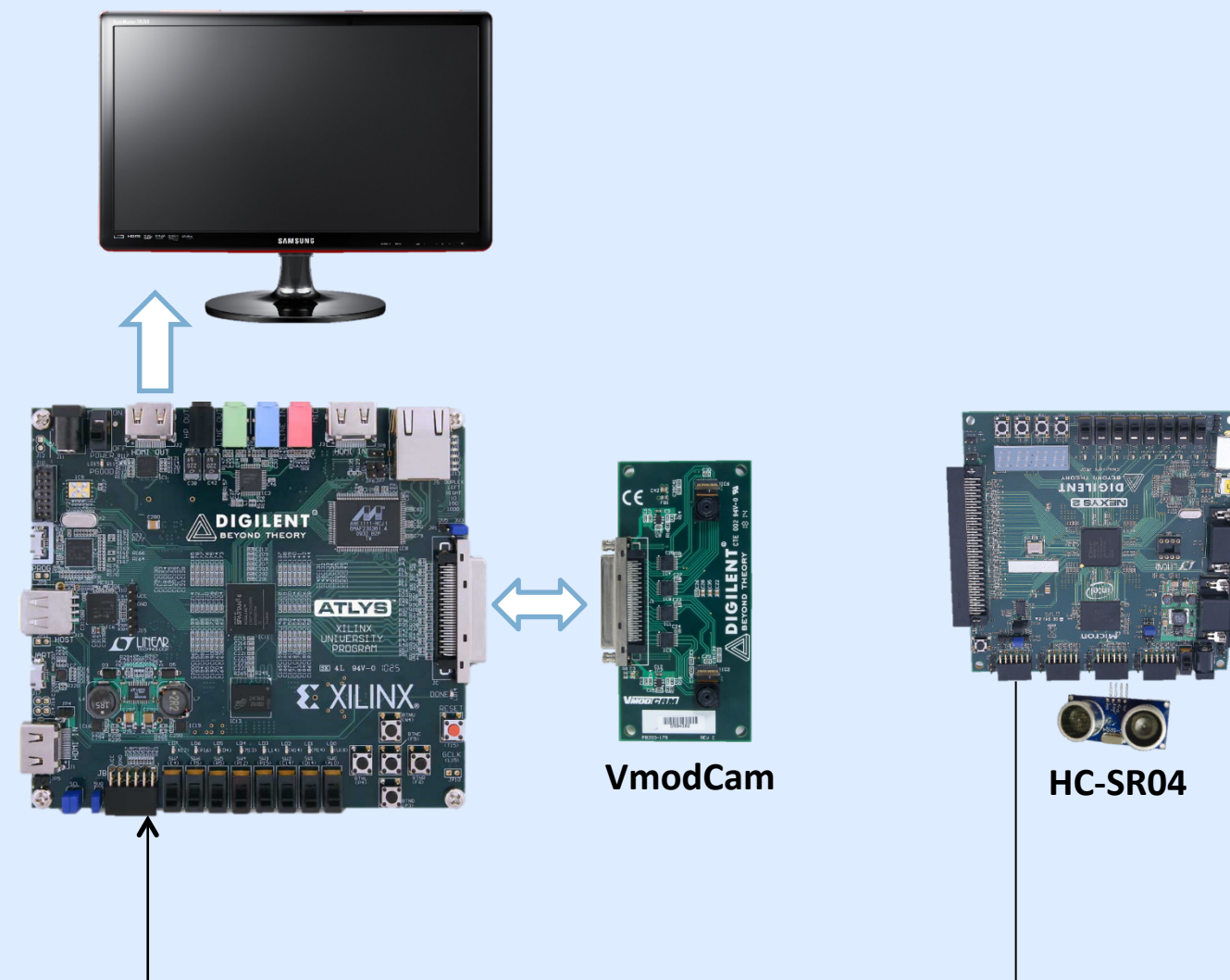


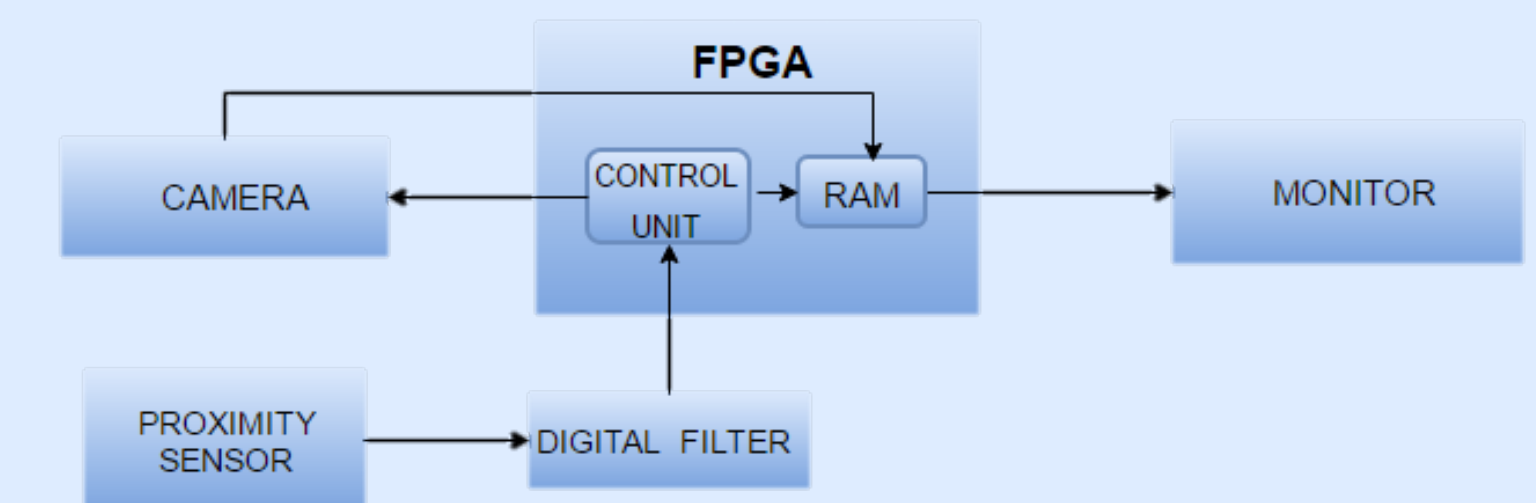
### Introduction

- Our project utilizes FPGA, camera, distance sensor and monitor in order to build a high speed security system.
- Camera takes photograph and prints it to the monitor via hdmi in case of detection of some movement by the sensor.

### System Overview



### Block Diagram



### Methodology

- Proximity sensor detects objects up to 4 meters.
- A digital filter is added to the output of the proximity sensor to reduce the noise.
- When security zone is violated, it triggers the camera.
- Camera (VmodCAM) gets the images in 1600x1200 (8 bit) resolution.
- Photograph is sent to monitor via HDMI when sensor detects any movement.

### Challenges

- We preferred to use Atlys FPGA board as controller unit due to its high processing capabilities and its built in Ram (128Mb) which is necessary for buffering high resolution camera data.
- One should note the tradeoff between speed and resolution, when image is to be saved

### Future Work

- Captured data can be sent to computer using uart, ethernet and so on for the purpose of image processing.

### References

Reference Camera Code: <https://reference.digilentinc.com/vmodcam:vmodcam>