

## ABSTRACT

Recently, technology based on video has increased. To communicate over internet network, many ways that people have done. Not only for communication, this technology has implemented on other purpose such as monitoring, security, entertainment, etc. But, this technology has consume a lot of resources. For example, video streaming process have consume a lot of resource for server, client and network. With this method adaptive video streaming can avoid this problem and we can get good video quality on client side.

Server has only flash drive, motherboard, parallel port, serial port, network card, and CPU, with connect to web camera. Web camera will capture video and then server will process this video and then stream to client on network.

In this final project, research focus on MPEG-4 encoding process with adaptive streaming. Adaptive streaming needed to adjust transmission bit rate with traffic network. Adaptive streaming MPEG-4 performance will compare with non adaptive streaming. Performance analysis such as *Peak Signal To Noise Ration (PSNR)*, *packet loss*, *bandwidth*, *frame rate*, *packet delay*, *Mean Opinion Score (MOS)*.

According this analysis, we can see that bandwidth was consumed by adaptive video streaming MPEG-4 on IPv6 multicast network as 24.075 Mbits/s and still under non adaptive video streaming. *Peak Signal to Noise Ratio (PSNR)* analisys for adaptive video streaming as 35.77 dB and also still above threshold (standard ITU as 20 dB). On Mean Opinion score (MOS) analisys, we can see that avarage value tha responder choose are 4 from 1-5, so adaptive video streaming MPEG-4 quality is good. Transfer rate (transcoding process) on adaptive video streaming MPEG-4 can adaptation with network conditions. Last, packet delay happened by queae on router.