

**Report on Internet Radio Demonstration**

At

**Wawasan Open University, Malaysia**

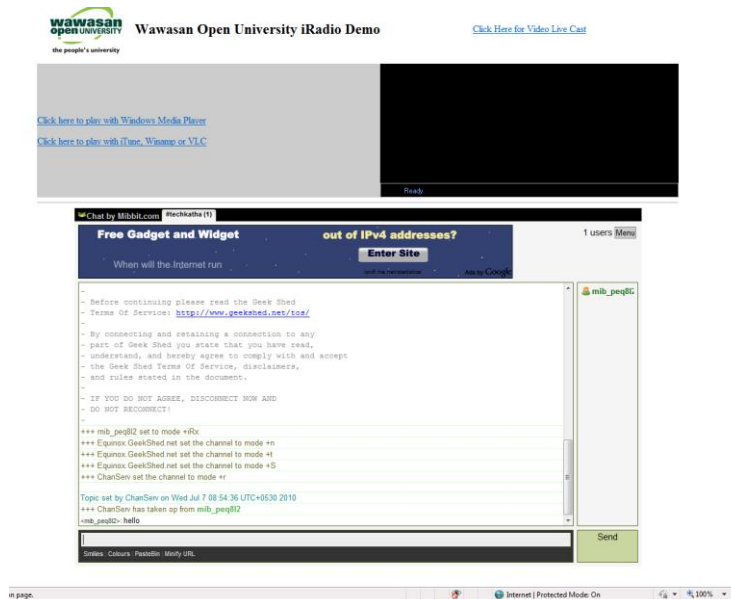
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## Objective

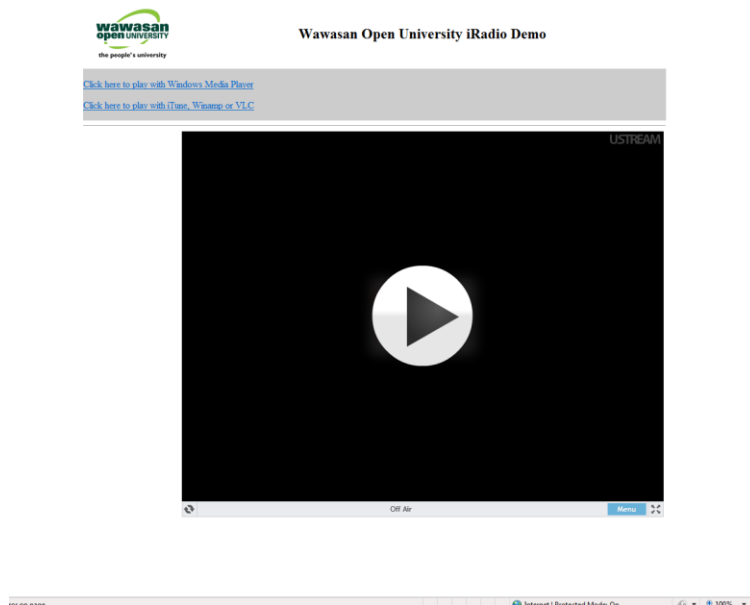
Objective was to demonstrate a working Live Internet Radio for the Wawasan Open University, Malaysia.

## Outcome

We have demonstrated a working Live Internet radio with a demo web site, that support Video, Live Chat and Live Audio Streaming (<http://iradio.wou.edu.my/>) witch included live interviews over the phone. Listeners from Penang, and other parts of Malaysia and Sri Lanka and India was able to listen and watch to the live cast.



### Live Radio & Chat Page



### Live Video Page

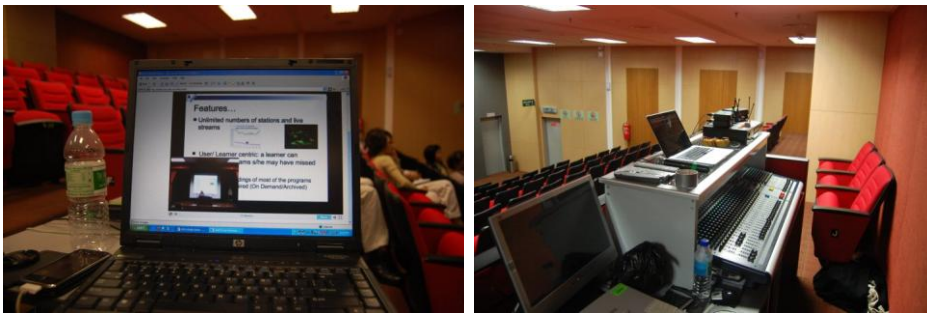
## Demonstration

### Radio & Live Video Stream

The demonstration was done using all FREE software and with out using any commercial products. Main live streaming server was located in the USA, and running Linux OS with Shoutcast (<http://www.shoutcast.com/>) streaming server that is connected with a 100mbps (bandwidth) Internet connection. For Live Video we have used Ustream (<http://www.ustream.tv/>). uploading/unlinking done using a 10mbps data connection from the local Wawasan LAN and Internet connection provided my Malaysia Telcom.

As the main up-link we used a MAC Book running Butt (<http://butt.sourceforge.net/>), while the live program was airing the same Laptop was running Ustream (<http://www.ustream.tv/>) as the Live Video broadcasting software, Live steam was done with MP3 compression at 32kbps. Video was done at 384kbps. The web site (<http://iradio.wou.edu.my/>) hosted on a temporary hosting at Wawasan web server.

Video and Desktop was captured using Ustream's Broadcast tool and video was captured with the Built in Web Cam on the Laptop.



*The Live Video & Desktop from the Live Broadcast, the Mixer used for Audio*

### Skype Video

Quality of Skype Video for conferencing demonstrated with a Handy Cam connected to a USB Video Capture device that converts the Video cameras Analog Video in to Digital video that can be connected to a PC via USB and used as a Video source for to use for Skype. Demo was done on a 2mbps Link.



*USB Video Capture Device*

*Skype Setup with the Cam*

*Skype Video on the Remote end*

## Basic Internet Radio Requirement

- Server Running a Streaming server with adequate bandwidth and Direct Internet connectivity.
  - OS - Linux (Free)
  - Streaming Server - Shoutcast (<http://www.shoutcast.com/>)
  - Internet Connectivity and a Static IP
  - Bandwidth will depend on number of concurrent listeners and streams bit rate
- Web Site
  - Web Site having Links to the Live/On Demand Streaming
  - If on Demand/archiving is done, space on the web server and bandwidth.
    - Can use a Free provider like Internet Archive (<http://www.archive.org/>)
- Studio
  - Computer running Winamp and Shoutcast DSP plug-in with a sound card that has a Audio In
  - if Archiving is needed, Audacity (<http://audacity.sf.net>) and Lager Hard disk for the Recoding
  - Adequate Sound Proofing
- Audio Mixer
  - Number of channels will depend on the amount of connected devices, such as MIC's, CD players, computers etc
  - Studio MIC's
  - CD/Audio Players
  - Phone Line with Audio Adaptor for the Mixer
  - High-speed Internet connectivity with ability to alter firewalls.
  - Backup power (UPS)

### Basic Video Live Casting Requirement

- Video Streaming Provider such as Ustream (<http://www.ustream.tv/>), Bitgravity (<http://www.bitgravity.com/>)
  - If Self Hosting
    - Windows Media Streaming Service or even Shoutcast (<http://www.shoutcast.com/>)
    - Internet Connected Static IP
    - Bandwidth will depend on number of concurrent listeners and streams bit rate
  - Video Capture Device to capture video from the source to the PC
  - Good Internet bandwidth for uplinking
- Web Site
- Studio
  - DVR's to recode archive video
  - Video Mixer
    - Number of Channels and Features will deepened on the requirement
  - Video Cameras
    - Pro Quality Cameras need to be used
  - Lighting
  - UPS Power
  - Adequate Sound Proofing

## **Recommendations & Observations**

host the streaming server with a local ISP (Internet Service Provider) with in the country, that will reduce any connectivity and up time issues as well as security. if the target audience is not only with in the country, then you may have to have good international connectivity/bandwidth as well. also the best practice would be to run the streaming on port 80 where it will help on places where they have firewalls in place as most cases port 80 is open to the outside world. at the place of uploading is done, the Internet connection up-link speed has to be 50% faster then the bit rate of the live stream.

Also notices that the international connectivity from Malaysia to outside of the county is not reliable and slow, also found the ISP them self to have issues with in Malaysia as well. ISP may clam the link to be around 10mbps or so but that don't mean the connection can actually provide a reliable bandwidth. Especially during peak hours.

When doing Video streaming best to use a 3<sup>rd</sup> party provider for the streaming such as Ustream and Bitgravity.

## **Cost**

Initial cost will be to setup the studio with required equipments, location a server with the ISP or getting a 3<sup>rd</sup> party server, building up a web site and other resources. running cost will contain the payment for the bandwidth and other ISP changes for Internet, web site hosting charges. apart from basic needed such as power, watter, building space, employee salary's and maintenance.