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ORIGINAL ARTICLE

Next Logical Step in Television Space

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Abstract
No other electronic media has created as much mass impact as the TV. TV is both a personal as well as family/community device which makes it reach a large population. Obviously the immense popularity of TV has resulted in an unprecedented growth of TV viewing as well as technology. From the simple TV today one can have a smart TV with varying features satisfying all sections of society. The TV technology has grown in all aspects namely the TV studio technology, the TV transmitter & broadcast technology and the TV receiving device technology. Not only have the TV signals been converted from analog to digital, today one has high definition smart TV boxes, the Evo Box, Lime Box, and Akai smart Box commercially available. It is very interesting and important to trace the evolution of TV technology from its basic form as in 1930s to date and to visualize their technical features at various stages of developments. This paper gives an overview of the developments in TV technology highlighting their important features.

Keywords : *Evo TV, limeBox, and Akai smart box.*

Introduction
Television is one of the basic necessities of our daily life. Earlier the television was based on cathode ray tube. This type of television had in built USB ports. We can watch movie with the help of external storage devices. The television supporting in built USB port were Plasma, LCD, LED.

Plasma was not so popular due to its high price. But the picture quality provided was the best. Out of LCD and LED, LCD became more popular due to its reasonable price. The functionality of LCD and LED were almost same. But the picture quality of led was better. But due to its high price as compared to LCD it didn't became popular. The next big revolution in Consumer Technology was Television. Everything has gone digital except TV. It was a Centre of Living Room once, but variety of new gadgets such as Smart Phones, Laptops, Desktops and Tablets compete with share of leisure time at home. So a new form of television was released called the SMART TV which was not limited to only for watching movies or watching music video. It was more than that.

Literature Survey

The year 2011 marked the coming age of internet-connected (Smart) HD TV's. Though your TV's Ethernet cable probably won't replace your cable TV quiet yet, many more applications and video services found their way into your TV. Television combine with computer, Internet and the technologies is becoming an excellent example of technological converges.

Smart TV is a phrase used to describe :

1) The current trend of integration of the internet and web2.0 features into modern television set.
2) Technological convergence between computers and the television set. Smart TV brings the internet into the living room. As the technology improving, many of these sets are becoming as capable as standard computers when it comes to web browsing and even Internet video. Some operating system run on SMART TV or even designed specifically for smart TV usage. Most often the operating system of Smart TV is originally based on Linux, Android, and other open-source-software platform. Television smartened. Feature added via Internet and some Apps and some Games.

Advantages and Disadvantages

- Direct internet access
- You no longer need to connect an HTPC, a laptop, or a desktop computer to the HDTV before you can use it for web browsing.
- It has perfect compatibility with Internet TV services. Supporting the first point, having access to internet means having access to streaming media. For instance, you can watch YouTube videos as if they were "channels" from a satellite TV service.
- It can be used as a simple computer. Smart HDTV's might have crude (and sometimes clunky) operating systems, but it should be sufficient to navigate through a home network or to access media files from external devices when needed.
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- Moving onto its negative points, some of the **disadvantages** of Smart HDTV are as follows:
- It can ironically be more confusing to use. With all of the added options, some people who are not used to highly functional HDTV's might not be able to navigate efficiently through a considerable number of buttons and links.
- Has a significantly larger price tag. Since it is installed with other technical hardware to have computer-like functionality, it would definitely be a lot more expensive. A lot of Smart HDTV's are usually near to twice the original price of an HDTV of the same size and screen technology.
- It holds a higher energy consumption rate. This supports the second negative point, and is also quite easy to notice (due to added hardware), though usage rates are not comparatively as high as its price difference.
- Its operation can be glitch. The first day we set it up, the TV would not connect through the router to the Internet.
- We also found toggling from Smart TV Apps to the main menu to be slow. Navigation through the Apps in Smart Hub can be frustrating due to slow load times and limited memory as a second pretty strong negative.
- Television become complex

- Problem with User Interface.
- Problem with Navigation and Remote.

How to Make a TV Into Smart TV

A smart set-top box is a digital media receiver that can access videos, audio, photos and other content from Internet-connected apps optimized for your TV. Some advanced smart set-top boxes have a web browser that allows you to surf the Web and search for the content you want. Many can also access content from connected devices in a home network (like from your computer). The smart set-top box then sends the content to display on a

connected HDTV, or play over a connected audio system.

Benefits of Smart Boxes

- Turn your existing TV into a smart TV.
- Access a huge catalog of streaming movies, music and other entertainment, personal photos and other Web content through one device, without the need for a cable or satellite TV subscription
- Display content up to full HD 1080p resolution on your HDTV
- Display personal media, like photos and videos, on your HDTV via USB connection.
- Listen to music and movie sound over your home audio system
- Search for specific content available through the Web or connected application.

EVO TV

Evo TV is an online entertainment platform making business and finance more entertaining through the production of branded content, reality TV and bespoke online TV technology. In producing our content our approach employs entertainment principles and production values usually found in more mass media content development.

We know content and have already produced some of the most innovative shows seen in corporate Australia. What makes us different is not only our knowledge of business and finance but equally important our connections within each sector.
The Evo TV is an interesting concept for the Indian home. For a big chunk of the population which might not see the need or potential of a big-brand smart TV yet, the Evo TV presents itself to be an affordable option, seemingly worth a try.

The EvoTV does heat up a bit after some elapsed time, but this is normal and can be ignored. What can't be overlooked however is a bizarre oversight — there is **no way** to switch off the unit; you can at best only reboot it. Fortunately, Amkette's tech support is aware of the issue and informed me that an update to resolve it will be released in a couple of weeks. Until then, you will have to power off the unit directly from its wall socket.

Fig 1: Evo BOX

The Amkette EvoTV features a motion sensing remote control, similar to the LG Magic wand, which will not only control native functions of the smart TV, but apps as well, enabling users to play games, draw etc, with the six-axis gyroscope. It also boasts of Evo Discover, an internet content discovery tool.

The company aims for the EvoTV to help consumers transform their regular televisions into 'Smart TVs'. Capable of playing back 1080p HD video, the EvoTV box sports a 1GHz ARM Cortex A9 processor along with a Mali 400 GPU, to power it all up.
Other specifications

- 4GB of built-in storage
- 7.1 channel audio output, as well as Wi-Fi (DLNA)
- Ethernet port, 4 USB ports, 3G dongle via USB, SD/MMC
- HDMI connectivity.

EVO TOUCH

The Evo Touch is much more advanced than a simple remote control. It works as a

1. Touch Sensitive Air Mouse
2. A Gaming Controller for Motion Gaming
3. A Voice Input device for Skype and other VOIP calls
4. As a universal remote for various devices.

WHY EVO TV

- Simple to set-up
- Built-in Wi-Fi modem and HDMI Cable for instant connectivity.
- Plug and Play, Ready to go
- Intelligent Touch Remote for ease of navigation.
- Powered by the Android OS 2.3.4 Ginger Bread, the Evo Box gives you an excellent, HD quality of sound and video playback. Get a one click access to your favorite apps, social networking sites, games and the internet browser.
- The interface of the EvoTV is easy to navigate through and with the help of the remote; your television can be used in the same fashion as you use an Android powered smart phone.
- You have the ability to edit the way you view the home screen by adding or removing widgets based on your preference. The widgets on the main screen are placed in blocks that are arranged by the category they fall under. For instance, there are dedicated sections for apps, games, media, Web, YouTube Viewer, etc. By having these sections on the interface, it becomes a convenient way to easily choose your favorite application directly from the home screen. This feature is similar to that of Android devices.

EVO Discover

Software called My YT Viewer that allows you access to customized You Tube channels and create your own channels in just one click.

LIMEBOX

Fig 2: Limebox

Limebox runs on Android 2.3 (Gingerbread) operating system that provides the user with a number of functionalities and features. The device has 4 GB memory. Speaking of memory, you can expand it via the two USB ports located at the back. Users can browse the Internet through two mediums—Ethernet and Wi-Fi. Our recommendation is to use Ethernet for flawless internet connectivity. Apart from surfing the Web, users can also browse YouTube videos. Limebox can connect to any TV using the HDMI or the composite ports. It supports full HD resolution and videos did look impressive on TV, although we must confess that we thought that sound quality could have been better. Limebox supports popular video and audio formats, including the likes of MP4, MOV, AVI, MP3, WMA and FLAC. Overall this is a good media hub with some nice features. If only it were less expensive (it **costs Rs.8, 500**), it would have been an excellent buy. HDTVs more or less have been pretty much restricted in their functionality, because with a screen so big, there's a lot more you can do than just use it for content consumption. Right? Enter Portronics Limebox. This little piece of hardware let's you run Android on your TV with the ability to do a lot more than just watch videos. But, is it worthy enough to turn your idiot box into a smart television? Let's find out.

Another similar Android-based internet media box product release was by Portronics, called the Limebox. It sports a 1.2 GHz Rockchip processor, and bears 512MB of DDR3 RAM. It supports Adobe Flash 10.1, and can play 1080p HD videos.
The Portronics Limebox runs on Android 2.3 Gingerbread, and has access to the Android Market or Google Play Store. Featuring a 1.2 GHz Rockchip processor, the Limebox is coupled with 512MB of DDR3 RAM. It supports Adobe Flash 10.1, and can play 1080p HD videos, in the following formats (MP4, MOV, AVI, DVD, VIDEO, ASF, WMV, MKV, RM, RMVB, TS, TP, DAT, MPG, MPEG and VOB)

Users will also be able to edit and view documents, with Android Office apps. It can be connected to a TV via HDMI cable, or RGB component cable. The manufacturer has

already bundled apps like angry birds and Fruit Ninja on the Limebox.

Additionally, it can also open PowerPoint, Excel, and Word documents, if you need to do that. Being an internet-enabled device, you can surf the web using any wireless keyboard or watch *YouTube* videos. The player features two USB ports, which can connect USB storage drives to access and play stored media. It even claims to support USB webcam for video chat. The Android market has a plethora of apps and games that you can download and install on the device, thanks to its in-built 4 GB storage, if you get bored with playing only movies. It also comes with an HDMI port to connect to an HDTV, while AV output is also provided for analogue televisions. Our recommendation is to use Ethernet for flawless internet connectivity. Apart from surfing the Web, users can also browse YouTube videos. Limebox can connect to any TV using the HDMI or the composite ports. It supports full HD resolution and videos did look impressive on TV, although we must confess that we thought that sound quality could have been better. Limebox supports popular video and audio formats, including the likes of MP4, MOV, AVI, MP3, WMA and FLAC.

Features

Web, Videos, Android apps, on TV:
Portronics Limebox is powered by Google Android
-bringing it together is seamless and simple.
- View videos
- Surf the Web
- Download apps from Android Market.

Plug and Play - Easy to setup:
Setting up Limebox takes almost no time at all. People need to just plug the power cord into the wall and connect Limebox to their widescreen TV using an HDMI cable or RGB cable. It also exposes the Limebox to the Wi-Fi environment or connects to the Ethernet cable.

Portable, Powerful and Efficient:
Limebox sits neatly on a TV stand or in a crowded media cabinet. And the included Limebox remote makes it easy to get to favorite entertainment. Instead people can use any wireless keyboard or mouse to cater to entertainment.

Android Market
Dig into apps-from news to entertainment, business to education. Whatever you're into, you can find an app that's into it, too.

Designed for TV's
People can enjoy Web, apps, videos etc very easily on the TV. House wives, elders and kids can also use this interface with much ease.

Browsing:
Limebox delivers improved browsing to the biggest screen in home, powered by Adobe Flash (version 10.1).It has redesigned to fit into HDTV in full screen, it features the browser so people can easily see and surf the Web from their couch with the world's most popular search engine. And Limebox supports Flash video, so people can watch the best of the Web-including HD video in full screen.

Full-size keyboard and mouse compatible
Limebox doesn't just bring the Web to the TV with Google; it also gives an easy and quick way to navigate the Web thanks to its full-size wireless keyboard or mouse (not included).

Gaming
People can download all free gaming from the Android market and use keyboard and mouse to play on their big TV. Few popular games like Angry birds, Fruit Ninja, etc. are the part of the hardware already.

Akai Smart Box
Similar to Apple TV, Smart Box is a digital media device which allows users to access content like videos, games and websites using Wi-Fi and broadband connection. Google, which operates the Android platform, also plans to launch its set-top box 'Google TV'.
The Smart Box has 4 USB ports, hard drives as well as connects to Internet using 3G dongle. The device connects to the internet using LAN, Wi-Fi as well as 3G. It also acts as a router using which other devices like tablet PCs and laptops can be connected to Internet. Akai India will sell the devices through ecommerce stores, its website as well large

format stores and distribution channels. It will also launch television commercials and digital campaigns for the device. Akai Smart Box, based on the Android platform, maintains an open network without getting restricted to the servers of smart TV brands, as in the case of most smart TVs.

Akai, one of the leading Japanese Consumer Electronics brands today announced the launch of Akai Smart Box. According to the company's press release, based on Google's Android 2.3 operating system, the new device will transform any television including CRT, Plasma, LCD or LED into a smart TV and at a price of Rs 6,590.

Talking about features, the all-new AKAI Smart Box comes with a wireless mouse for easier navigation with which any TV can perform all the functions that a tablet PC normally does. It is equipped with 4GB internal memory and supports memory up to 32 GB through an SD Card slot.

It can enable users to connect to the internet and browse websites, read popular books and newspapers, check mails, weather and market updates, play games, book travel tickets, play music, play videos on YouTube and be logged on to Facebook, Twitter or Skype accounts. Customers can also shop from TV by logging onto any of the shopping portals.

Apart from that, it also supports Digital Living Network Alliance (DLNA) which allows the user to access and share digital content (videos, photos, music) from his mobile phone or computer on to the TV screen directly when on a common Wi-Fi network.

Connectivity-wise, the device supports 2G and 3G networks, Wi-Fi, LAN, and has 4 USB ports, which means that besides a mouse, key-board and webcam, one can also connect a hard disk or a pen-drive and play movies, music and pictures on the TV itself. Apart from that, it can also save pictures and videos recorded through the external webcam connected to the device. The company claims that it supports all popular movie, music and picture formats. It also lets users create a Wi-Fi hotspot if connected to a LAN cable or 3G dongle to transmit Wi-Fi signal to operate other gadgets (maximum 5 gadgets)

Note that this box is not based on Google's smart TV platform, Google TV, which is not available officially in India (via Sony or LG devices).

Fig 3: Akai Box

Key specs:

- Android Operating System
- Unlimited Internet Browsing (Open System)
- 1.25 GHz CPU Processor
- Built-in Wi-Fi and Ethernet port
- 3G Dongle and 2G Network support
- Creates Wi-Fi Hotspot
- HDMI port for Full HD video playback
- AV port
- 4 x USB 2.0 ports
- SD/MMC card slot (Supports up to 32 GB)
- Headphone and Mic Jack
- Wireless mouse
- 4GB Internal Memory
- In-built IM (Google Talk, Skype, Yahoo) & Social Networking Sites (Facebook, LinkedIn, Twitter)
- Supports YouTube Videos
- Unlimited applications access through Google Play store
- Calendar and Calculator function
- DLNA Support

Conclusion

Smart TV because of their high prices have not become so popular , so people are tend towards buying smart set up boxes that converts the existing TV into a smart TV.The below comparison according to our study will help the customer to decide on the type of smart box they wish to establish at their home.

Specification	EVO TV	LIMEBOX	AKAI SMART BOX
Released By	Amkette	Patronics	Akai , Japanese
Includes	Evo touch, Evo view, Evo Discover, Evo Box	Limebox + Remote	Box + Wireless Mouse
O.S.	2.3.4 GingerBread	2.3 GingerBread	2.3 Gingerbread
Inbuilt Memory	4 GB	4GB	4GB
Number Of Ports	4	2	4
Processor	1 GHZ ARM CORTEX A9 Processor	1.2GHZ ROCKCHIP Processor	1.25GHZ CPU Processor
MS Office	Support	Support	Doesn't Support
Connections	No wires required + Less Devices	No Wires +more Devices attached	Wires required +Device attachments
Attachments	No need EVO Touch is enough	Support Wireless Keyboard Mouse and Mic	Jack for Headphones and Mic
Disadvantages	Heat up + Booting time	Heat up + could have better Sound Quality	Since it has been recently launched so the disadvantages are yet not into a frame
Price	Rs. 10000	Rs.8950	Rs.6590

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