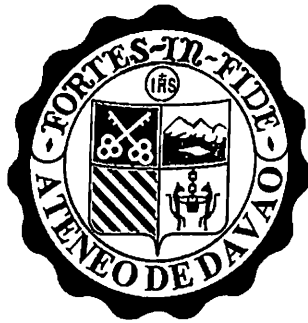


MOBILE TV VIEWER ON S60 MOBILE DEVICES

WITH JAVA ME



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WITH JAVA ME

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Proposal Summary

MOBILE TV VIEWER ON S60 MOBILE DEVICES

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Abstract

The mobile technology has opened its doors to digital technology finding new ways of innovation and making things far more accessible than ever before. A decade ago mobile phones are only capable of GPRS connection, now we can connect through Wi-Fi connection and be able to access the internet with higher bandwidth. As we come across the digital age there is a wide range of possible implementations to mobile devices that are capable of manipulating digital media. Java Micro Edition (ME) Platform provides a robust, flexible environment for applications running on mobile and other embedded devices—mobile phones, personal digital assistants (PDAs), TV set-top boxes, and printers. Java ME includes flexible user interfaces, robust security, built-in network protocols, and support for networked and offline applications that can be downloaded dynamically. Applications based on Java ME are portable across many devices, yet leverage each device's native capabilities

The group is proposing a mobile application that is made using NetBeans IDE on Java ME platform a Mobile TV viewer wherein a mobile device is able to view TV channels using the 'TV viewer application through Wi-Fi connection.

Details of the Proposal

MOBILE TV VIEWER ON S60 MOBILE DEVICES

WITH JAVA ME/FX

Background of the Project:

Mobile phones have features like browsing streaming videos, file videos, and mp3's but not all phones are capable of browsing TV. S60 devices are equipped with hardware protocols which enable audio/video streaming possible. The proposed TV application project uses these protocols to communicate with the channel servers through Wi-Fi connection and return frequency to the application therefore displaying the audio/video stream of a channel that is available in the internet.

The group aims to make the project application on S60 phone devices. These phones are capable of browsing large memory videos therefore browsing streaming TV videos will be made possible. The plan is to run the TV application independently from a phone's network provider because network providers (ie. Smart, Globe, Sun, Talk n Text, Touch and Red Mobile) charge for such service. To obtain this the group will use the capability of an S60 which is to access the internet through a Wi-Fi connection. The video stream that the application gets would come from a Wi-Fi service. The connection between the mobile's protocols and the Wi-Fi service would give the project application frequency of available channels.

The group is using NetBeans in the implementation with the packages from Java ME, Mobile Media API, Mobile Information Device Profile.

Technology Application Context:

Major Problem: How to develop a TV viewer application for s60 devices.

The group seeks to answer the following questions:

- What are the processes of audio/video streaming?
- What are the types of protocols being used for live streaming
- What are the capabilities and limitations of s60 devices
- What are the features and capabilities of Java ME applicable to video streaming
- What are the limitations of API on s60 devices
- What are the steps in broadcasting through Wi-Fi?
- Available API on S60.
- What does leech protected websites do

Objectives of the Project:

The objective of the project is to successfully provide the TV viewer project application on the S60 device and experiment on the phones available API's.

The Specific objectives are:

- To know the streaming protocols that could be use on implementing a mobile TV viewer application.
- To know the step by step process of streaming.
- To learn Java ME capabilities and features applicable to video streaming.
- To learn the limitations and capabilities of s60 devices.
- To learn the steps in broadcasting through Wi-Fi
- To know the features of the APIs on s60 devices

Significance of the Project:

The significance of the project is learning the technologies of broadcasting which includes the processes of video/audio streaming through Wi-Fi, the system where all the streaming processes operate, the protocols that enable communication between a mobile and the streaming server. This project demonstrates the use of available APIs and protocols on S60 phones. It also aims to make TV available anywhere there's Wi-Fi connection, making it free and preset channels.

Scope and Limitation:

The project scope includes the proposed application's use of Wi-Fi connection, audio/video streaming, and selection of available channels to broadcast through search and preset channels.

The project is limited to the use of the WLAN access digital broadcast signal. The project is limited only to S60 devices. The channels available on the proposed application are limited to what the channel server offers. There is also a choice of buying a digital receiver to connect to any mobile rather than the S60 devices but it is beyond the group's capability. Instead, the group will only use the APIs available on the S60 device.

Glossary/Definition of Terms:

(DTV) Digital Television – anything that involves broadcasting TV

(UDP) Universal Datagram Protocol – assumes that error checking and correction is either not necessary or performed in the application, avoiding the overhead of such processing at the network interface level. Time-sensitive applications often use UDP because dropping packets is preferable to using delayed packets.

(CDC) Connected Device Configuration - is a framework for building Java ME applications on embedded devices ranging from pagers up to set-top boxes

(JMF) Java Media Framework - is a Java library that enables audio, video and other time-based media to be added to Java applications and applets

(DVB) Digital Video Broadcasting - an industry consortium that standardizes various aspects of digital TV broadcasting

(MHP) Multimedia Home Platform - a set of Java APIs that let you write interoperable applications

(3G) are wide-area cellular telephone networks that evolved to incorporate high-speed Internet access and video telephony

High Speed Packet Access (HSPA) is a collection of mobile telephony protocols that extend and improve the performance of existing UMTS (Universal Mobile Telecommunications System) protocols

(MPEG) Moving Picture Experts Group is not just a single standard. Instead it is a range of standards suitable for different applications but based on similar principles.

WLAN/Wi-Fi - Wireless LAN

XLET – applet equivalent in the DTV world

Declarative syntax - simplifies the creation of graphics and makes the code easy to read and maintain. The structure of declared objects in the code reflect to the visual structure of the scene graph, and this enables better understanding of codes.

Interactive TV enhancing the viewer's experience by changing video, audio and any graphics in some way

DSM-CC - Digital Storage Media - Command and Control: control of MPEG video servers over a network (playing, stopping and pausing video or audio), support for data transmission using MPEG-2, timecodes for MPEG-2 video, simple data broadcasting and broadcast file systems. The same principle as Teletext.

Teletext System – Consists of a number of pages. Each page has a unique number, and each page is transmitted in turn. When the user enters a page number, the TV must wait for that page to be broadcast before it decodes and displays it. It is one way.

UMTS - Universal Mobile Telecommunications Service - describes broadband , packet-based transmission of multimedia content at data rates up to 2 Mbps to mobile device users globally.

In real-time Transcoding, a transcoder converts a high-rate and high-quality video stream to another low-rate and low-quality stream depending on changes in the reception quality in real time. The transcoder converts video formats corresponding to receiver capabilities.