Wireless Video Streaming using ARM Processor

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Abstract

Due to the explosive growth of the Internet and increasing demand for multimedia information like on line entertainment, on demand videos, on line lectures etc. on the web, streaming video over the Internet has received tremendous attention from academic institution, various professionals like teachers, politicians, doctors, authors and many related industrialists. Transmission of real-time video typically has many requirements. However, the currently available streaming methods does not offer any quality of service nor cheapness to streaming video. Furthermore, for video multicast, it is difficult to achieve both efficiency and flexibility. Thus, internet streaming video poses many challenges. To address these challenges, extensive research has been conducted. This special article is aimed at dissemination of the contributions in the field of streaming video over the Internet. And a trial to achieve this goal is established in this dissertation work and hence to pervade cheap and effective method of video streaming.

Keywords: Preprocessing, Coding, Running, gstreamer

I. INTRODUCTION

Now It is a right time of crucial change in tele communications. New infrastructure have been adopted to stream videos, voice and text etc. over the Internet and avail content via various portable devices like tablets, laptops and smart phones. These systems are used on the variety of platforms for communications, politics, entertainment, and commerce and medical science. At the same time, an "Internet of Things" [2] based on sensors and device to device communications which offers the potential to create new relationships between customers and businesses. This can be also useful to our conventional video surveillance systems.
In this research, I see the future need and growth of video streaming and digital data delivery systems during a time of data exchange. I explore what these changes are meant for people, businesses, and governments. Briefly, I would like to tell that there are many opportunities of video streaming where it can be applied to a multi-platform streaming world. New technology and available models have the potential to become more efficient flexible, adaptive, and cost-effective. But somehow it needs to adopt new developments and strategies. Different categories people like old, impaired can also take advantages of this continuously growing field.

II. IMPLEMENTATION METHOD

Following figure shows block diagram for this method.

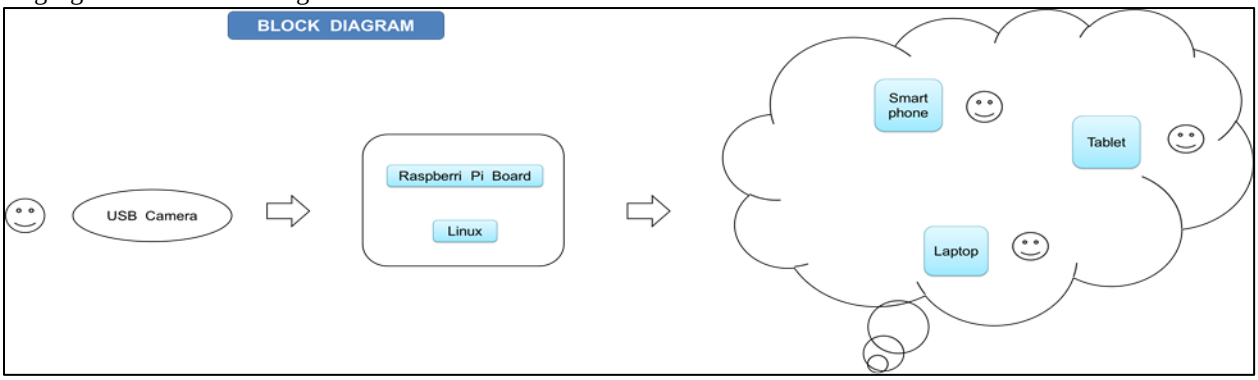

Fig. 1

The Implementation Process Is Carried Out In Following Three Stages:

1) Preprocessing
2) Coding
3) Running

A. Preprocessing:

Pre processing involves making Rpi ready to use for video streaming. Prerquired softwares like motion (for webcam), gstreamer, ffMpeg, Apache server etc. and OS like Linux [1]are installed during this stage. Various components occupies memory as shown below:

Table – 1

Sr. No.	*S/W, OS*	*Memory occupied*
1	*Linux*	*1.3 GB*
2	*Gstreamer*	*12.9 MB*
3	*Apache Server*	*11 MB*
4	*Motion(Webcam software)*	*30 MB*
5	*FFMPEG*	*203 MB*
6	*Media server*	*317 MB*

Preprocessing involves following major activities :

1) Port OS on Rpi [8]
2) Attach webcam to Rpi [7]
3) Build and run Gstreamer on Rpi
4) Compilation of ffMpeg on Rpi [6]
5) Setting up an Apache web server on Rpi

There are various implementation for achieveing real time video streaming, but all of them having some lacks like – increased cost, bulky hardware, wired approach etc. While this proposed implementation overcomes all these deficiencies, while it is also efficiently implemented. Also it has optimal memory requirements.

B. Coding:

Following files has been developed for implementation.

1) File for testing whether server is running or not.
2) A file for controlling and defining each task for live video streaming including video framing, video resizing, calling server , running MJPG streamer etc.
3) File used to initialize live video streaming task which include initializing camera, initialize media server and generate server files.
4) File for shutdown Rpi, It runs whenever disconnect button is pressed.
5) Main file to combine everything and it generates GUI for user.

C. Running and Result:

Following figure shows connection diagram

Fig. 2

III. RESULT

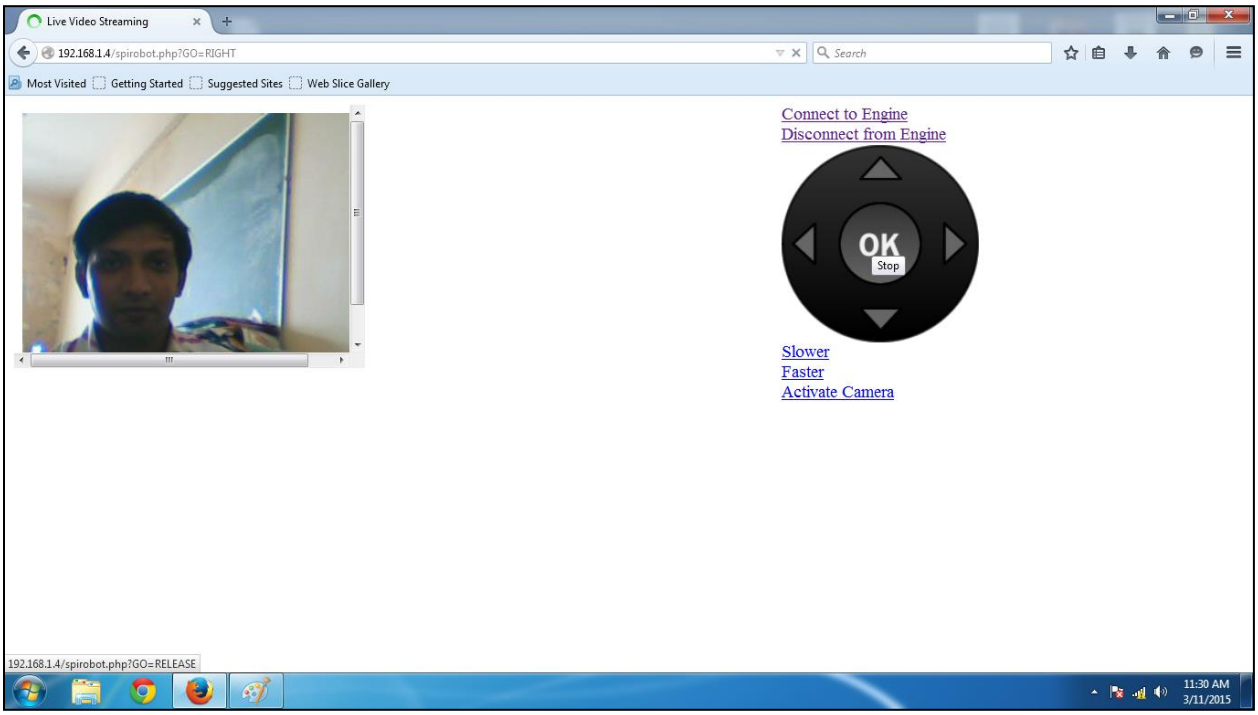

Fig. 3

IV. CONCLUSION

The day to day demand of live video streaming is constantly increasing and the use of video streaming in the field of education, healthcare, entertainment, politics is quite growing. Also the use of portable devices like smartphones, tablets, laptop computers is also increasing day to day.

So , This method of video streaming which is efficient, easy and economic will surly meet the increasing demand of live video streaming in future.

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