

Project Proposal for Software Development by Final year Dept. Computer Science Students (COS 301)

Project Title: Virtual Screen and Sound Peer to peer streaming.

Project Type: Software Creation and Development

Working Software Name: Stream2me™

Client Names:

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Project Proposal Introduction:

Motivation, project goal and problem definition.

In the following further description of the proposal the word computer refers to any device of everyday relevant use will computing capabilities (desktop, laptop, smartphone and tablet). It must be kept into cognisance that it may have to be a mobile and desktop version.

The need for sharing of screens arises when a group of people are working on the same project either in close proximity to each other or at a reasonable distance. Consider this scenario, a team, consisting of five members, is working on a practical report which consists of five sections. Sections have been assigned to each member in the team; the team is working in a discussion room in Merensky library. The possibility that the group manager could share his or a virtual screen with the entire group as he shares some relevant material on his screen about the practical report and it updates across all the screens, assuming a virtual screen has been created and the entire team will be looking at the same screen shared by the group manager, this would make life a whole lot easier. The objective of the Stream2me™ would to act as a display monitor virtually created on and/or by the application without the need for that the physical item. This will be occurring wirelessly and virtually.

In many instances, one could be working on a certain assignment on a computer and wants to show that to a friend, one's instincts is to normally turn the laptop screen to the other person, the development of this software will make that an old era action, one would have the option to "stream2™" friends laptop screen with the other person, conveniently from each person's screen.

Consider a scenario where by the friend you want to show is not in the same room, building even country. You would still be able to show them what you are seeing on your own screen. Whether it be to teach them how to perform a certain task or merely wanting to share a part of a video without the need to send it.

The applications are almost limitless, as the users will naturally expand its uses, but the objective is to create and/or mimic whatever is occurring on the streamers device screen, this includes audio.

Considering that one could also want to share the music they are listening to. The use for this will be demonstrated using another scenario, one is listening to music through earphones and would like share it with a friend to listen to that specific song, instead of suggesting the person to download it or unplugging the earphones and giving it to the other person (this is unhygienic) one could simply press a button, the "stream2" button.

You would be able of doing this without the traditional removing of your earphones and whereby your neighbour would also remove theirs and listen to the song but you can no longer hear it. Of course this would also apply to any person that is physically distant but wish to contact in this manner.

Consider another situation where you have certain media on your mobile device that you wish to share to someone who does not have it. Instead of sending it to the person you may want to share it in real time as you are enjoying it as well. You could “stream2” and share it whether it be a video, pictures or music (audio), reading an article/pdf.

The primary compatibility operating systems are Windows and Android.

If there is suitable working time to diversify the compatibility of the project.

The secondary compatibility operating system is iOS (Desktop and/or Mobile).

Both these are within the scope of the proposal and priority to be taken accordingly.

Justification/Purpose of project

The sole purpose of the application will be to add to the development of the digital age. It is an idea that some people may useful and can have ripple effect applications that may benefit many tasks when exposed to the environment. This is the era of that growth and that process, to contribute to the creation tomorrow whichever way one can.

Its release will also be a contributor to South Africa’s digital international mark. The main angle of the project is to take the existing open source platforms that are similar in function and face towards mobile use. Development in mobile device peer-peer allows the application to be feasible.

Objectives: Goal tests

The main objective of the software is to:

- Enable the sharing of a computer device screen and/or audio with another computer or computers with the same software in real time.
- Enable the options of creating a virtual screen and sharing it with another computer or computers with the same software in real time.
- Smooth high quality streaming with minimum buffering (May vary via connectivity speed).
- Easy to use and simple dynamic GUI
- Multi-media connection compatibility (Intranet and Internet)

- The Capability to record all the actions into a video file as well as the option to add voice recording if a microphone connected (Most devices have this integrated)
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Target Customers

The target customers in the initial stages of the product circulation will be mainly university/FET student. However, considering the long run, the lists could include:

- Students in general (Primary school, high school and tertiary institution students')
- Employees in industry such as professionals in a design team
- Essentially anyone utilizing a personal computer and works with people

Project Requirements

The features to be included in the software as stated in the objectives the discrepancies between functional requirements and objectives (nice-to-haves) will be clarified during weekly/biweekly meetings as well as expanded. The following is a list of requirements, constrains and objectives.

Requirements	Description
Titling the virtual screen	The user should be able to name the virtual at his own discretion, however, a default name can be assigned.
Multi-media compatibility	Screen to be shared over Bluetooth, wifi, s-beam, nfc, or any other convenient method according to the programmer's discretion that will be the most efficient and easy to connect. The idea is to avoid/bypass the necessity to initially pair as this will defeat the purpose of convenience.
Connection security	A secured connection should exist, a third party should not be able to access the connection and cause an interference.
Share Requests	A user will have the option to cast, accept/decline a share request
Virtual screen editing	If a virtual screen has been created (not a "current share") there will be an option for the "sharer" (the person sharing the screen) to allow editing from another computer or not by switching the screen manager. By doing this it disable the sharer's ability to edit. Only one computer may work on a screen at any given point.

User friendly	The average thirteen year old and above.
Safety	The connectivity safety as well as operational functions should have in place protection against malware that may compromise the functionality of the system and information of the users.

Appearance

The appearance of the program, including colours, fonts and theme can vary, it will be at the programmer's discretion. Taking into account the nature of the project this will most definitely need to look clean and minimalistic in its simple functionality.

Professional and light animations that will embody the vision that this is the future of computer-human integration.

Tools and Resources

The tools necessary for the development of such a program might include the use of any of the following or any other required evolutionary development methods:

- C#
- C
- C++
- JavaScript
- Octave
- Python
- Matlab
- SQL
- HTML
- Objective-C
- Ruby
- others

Financial Budget

Software development is not as extensive as most projects are. The basic costs included in the project will be payment for manpower (programmer's time and effort), transportation, research funds and any other unforeseen expense.

Activity	Amount
Materials and Equipment	R 1000.00
Sundries	R 500.00
Total	R 1500.00

Testing devices will be supplied when the time arises for their need.

Challenges: Feasibility

As in every project certain challenges could be encountered, in this particular software development, the main challenge would be that the project is very extensive and considering the time allocation it may not be possible to develop for all the platforms. Another challenge besides sufficient time for the project would be creating a software that is creatively user friendly, catering the not so proficient computer users in a simple yet profound manner.

With the development in mobile device technology and capability the software becomes feasible as well as for its predecessors.

Conclusion

The simplicity of the software in the real world is an essential aspect. This software is just a “nice to have” software where a skeletal structure would be adequate, without the fine details. The project is not limited to the above mentioned descriptions and it is open to the students’ interpretation and understanding.

If there are any additional questions or amendment to be made to the proposal, please do not hesitate to contact us by email or by phone.