

Producing Live Tv Programmes on Multi-Mobile: an Academic Experience

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ABSTRACT

An Academic Research Group has studied the last developments in Mobile Television and Live TV Production with conventional technologies in order to explore the possibilities of producing audiovisual formats which use several mobile telephone units as if they were on-line studio cameras. The aim is to apply these new possibilities and conditions to live team work.

This plan, which has turned out to be successful, has contributed to an emerging technology-based company, which is able to provide their clients with the production of institutional and business events. These mobile telephones cameras and microphones obtain images and sounds that are transmitted via the 3G network, and are subsequently combined live and sent to a streaming server, where they are re-addressed to the client's suggested URL, thus creating live multi-mobile programmes.

Keywords

Live TV, multi-mobile TV, TV and university, collaborative contents.

1. Introduction

The aim of this project was to reproduce, from the University, the conditions and methodology of the production of two programmes that are often used on commercial television: those whose mise-en-scene cannot be repeated and those in which the central studio is connected to reporters who narrate their news from geographically distant places.

The second aim was to prove the efficiency of mobile TV technologies, which are at the moment more developed when it comes to reception but not so much in terms of production. This is due to the fact that their low cost and resolution result in distrust and, moreover, the processes are beginning to be known by the consumer as more complex than what they are considered to be beforehand [7]. There are some studies which have proven how the consumer is increasingly getting used to incorporating mobile phone videos to his daily life but also how, nevertheless, he is also easily finding its limitations when the technical requirements are minimal [11].

Furthermore, many mobile phones are offered with different production and viewing video tools, although it must be taken into account that the experience of watching television on mobiles is in many ways related to the proper resolution and size of the mobile's screen. Thus, the users refuse to have a larger screen, as this implies to have a bigger mobile phone [9], and the capturing devices tend to become smaller, although, at the same time, they include more possibilities, such as instant editing resources, as well as sharing and internet uploading software.

These devices to edit and share videos online are encouraging and promoting the use of both creative and non-fictional filmmaking. One of the main reasons to explain the use of collaborative video

production with mobile phones is “that the phone was always with us and thus easily available” [12]. Therefore, the very same device that is used as a mobile TV receiver is becoming a key part in the process of contribution, in such a way that the communication circle is closing in at the same time that the traditional concept of television is more and more blurred [1] for the consumers/contributors.

The remaining fact is that the trading of video on internet has enormously increased in the last years, becoming an important business attraction. The same can be said about the circulation of audiovisual small pieces and news. To be more precise, live video market through streaming (live stream) is in a process of highly quick development. Examples of this are stickcam [16], payperlive [15], streamAPI [17], ustream [18], oonair [14] to name but a few. If we take into account that the original video (which is delivered to be shown live) is gained from a signal that comes from a mixing board, the aim of obtaining live multi-camera broadcasting is fully achieved. But this configuration, in itself, does not allow, as yet, connecting distant locations, and it implies several limitations when it comes to movement.

Mobicast system does not allow this either, although it is still one of the most relevant examples of technology applied to mobile multi-stream video production. With it, the user can improve the visual experience of a certain event; this is done thanks to the proper combination of simultaneous video streams [6]. The system will tend to present a composition made of images (stitching) that come from various terminals, which are handled by users who do not necessarily have to be in co-ordination. In similar conditions to those of mobile video production, the technologies that imply team work for live video have already gone into broadcasting, business production and other audio-visual contents, such as the 3G Mobile Studio system, which belongs to the Spanish company *Createcna*. This has been successfully tested and is currently being used by a number of worldwide television networks.

2. Methods

The starting point of our approach demanded, on the one hand, that we checked the existent technology. On the other, it was necessary to study current production procedures in the media industry. Both aspects were to be examined after being applied to a couple of programmes with similar characteristics to those seen on commercial television windows, as far as screening aspects are concerned.

The project’s research frame could therefore be placed in the so-called ‘Action Research’ [13] typology. This presents some advantages, such as personal experience and knowledge [8]. It is not possible –and it is not our intention- to generalise the results of this project. Likewise, no ethical dilemma should arise when it comes to establish a comparison between the method employed and others.

The idea was that the programmes should follow certain aspirations concerning communication and screen production, and the experiences obtained from this would provide enough data so as to form a technological system that is able to work effectively within our designated purposes. This should be done exclusively with tools that had not originally been created with that purpose. Besides, it would also provide us with a production procedure that guarantees, even under adverse circumstances, that the programmes can be made with satisfactory quality results.

3. Related work

The specificity of this approach and the lack of archival experiences limited the availability of scientific documents. It is important to remark the experiences of Mobility Studio, as well as their research projects developed at the Interactive Institute [5], in which a significant future for live creative video on

mobile phones is foretold. [4]. It is suggested that the existence of these tools will be demanded by non-professional publics, while it will also be the genesis of new interactions amongst these users [2].

Although, originally, the starting point was the concept of editing in real time [2], the same research team committed itself with Vjing-based practices and evolved towards live video mix, presenting thus the implementation of its own prototype, Swarmcam [3]. Swarmcam captures images (via a Symbian 60 client) and exports them before the combination of signals (in the open source platform Movino). The export is incorporated to the mix thanks to a hardware that is commonly used by VJs.

4. University Project

4.1. Signals traffic

The challenge was to obtain, with already existent technology, a configuration that allows sending, from a client on each terminal and in an independent stream, coded video and audio, through the 3G Network, in such a way that it would be received in an IP address, and then be combined live by means of online production software.

Afterwards, (see Fig. 1), the exiting embedded video and audio output is separated in such a way that new audio channels can be added, for commentaries and voice-over, but not interfering in the synchronisation of both signals. Before being coded, this signal is collected in order to obtain a standard stream, which is subsequently sent to a commercial streaming server. With this, the signal can end up in the suggested URL with a few seconds of delay from the original time of production, i. e., a live programme, offered almost in real time.

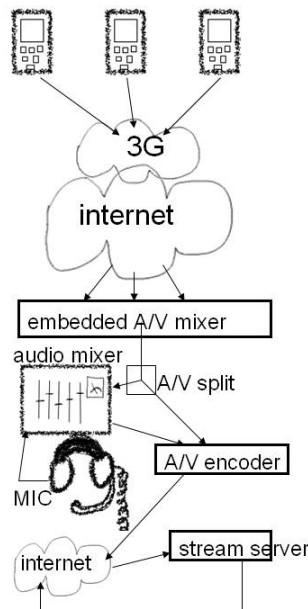


Figure 1. Youlive System Architecture

Finally, Youlive developed its own viewfinder with varying resolution in order to display and compare the different parameters that had been obtained from the different tests.

4.2. The Team

Our interdisciplinary team of researchers, which included two analyst-programmers, a marketing and entrepreneurial media expert, a media production expert and a researcher with experience in live TV producing and directing. Final-year students and new BAs of a degree on Media and Journalism formed a team of mobile-communicators. They were able to organise the contents of an attention-grabbing programme, host it in front of the camera, interview guests and handle cameras and software, after being trained. A total number of fourteen students formed groups of two so as to take turns handling the camera and microphones, and the tools for the combination of signals and communications.

4.3. Live Production

This system would be tested with the production rehearsals of two academic programmes, based on different times and spaces: the first one consisted of an average live broadcast show, that is, a number of terminals which use their cameras and microphones simultaneously so as to offer different points of view of the same actions. This broadcasting became more complex with the presence of voice-over narrators, due to the fact that, on its own, the software could only work with embedded video and sound signals. A well-known hardware, however, provided the possibility of using separated signals, remixing the sound with the voices of these new narrators and, thanks to a regular software, encode the proper stream format that allows us to upload the resulting signal to a commercial server.

Originally, the communications from the main control centre to each signal consisted of body language and video gestures [10], in such a way that the director had to decide when the new framing was ready to go into the stream of the programme, and this proved to be very difficult. The mobile-communicator's assimilation of this planning was not satisfactory enough. The main problems used to come not so much when the shot seemed to be ready to be shown live, but when it came to decide how longer each mobile camera could hold the narrative responsibility. It turned out that it was impossible to know the exact time in which the mobile-cameraman was free to look for the next framing, as had been arranged, and this led to many mistakes. It was decided that the strategy should be changed, following Perry et al suggestion [10] and then agreed that the ways of professional production should be followed as closely as possible. Indeed, a first, non-conclusive, technological solution has been present in the market for years: software and multiconference services that use extra terminals.

A second aspect encouraged us to follow this new production strategy. Mobile phones are tools which are normally used within the range of one's arm length, whether it is for the reception of images [9] or the production of them. Therefore, the variety of frames tends to be very limited. The idea of incorporating a second person to each contributing unit solved two problems at once: first, the problem of communication, which helped to afford a more dynamic updating of the programme's running order. Secondly, it offered a more varied audio-visual repertoire, since this new procedure made it possible to work under conditions that are more similar to professional video practices, despite the differences in frame size and resolution. As a result, however, new difficulties arose, some related to sound, others to the length of cables, the reach of cartridges, sensitivity, et cetera. Nevertheless, these problems were solved by means of basic and well-known resources.

Moreover, the inexistence of a warning sign for the outgoing terminals (on a tally-like manner, as used in professional projects [10]), suggested that an independent circuit of communications should be created. This circuit should use the GSM network, a multi-conference software (available on the Internet), and new terminals (independent from those used for the export of data). With another terminal circuit that connected the mobile cameras main control centre, it was easy to establish a dialogue. The crew of mobile-communicators could then be informed about the forthcoming contents of the show, or warned about the urgency of a new connection, their presence on the screen, and even be told some

indications about duration, pitch and framing. It also permitted the crucial information that confirmed that they had been substituted by other contents on the exit stream, in such a way that they could concentrate on the preparation of the next part of the script.

The second show reproduced a different format based on different sequential shots that are connected from a permanent position at the studio. New problems arose: the TV host spoke with distant narrators who, on the streets, were informing about Christmas decoration in the centre of a big European city. Afterwards, another pair of mobile-communicators answered from a tourist bus stop, and, with no interruption, went up the upper deck (with no ceiling) while the night was falling. They presented monumental buildings of a typical tour, and interviewed some of the tourists that were enjoying the ride on the bus. After a walk by the studio, the TV host asked for yet another connection, this time to talk about gastronomic shopping on a refurbished and popular market, and to chitchat with customers and shop owners.

4.4. Discussion and Conclusion

Of the two formats that have been tested, that of the sequence connections makes it possible to relate distant places simply with a (WIFI or 3G) data network to be used by the terminals. With no cables, no bookings and no waits. The costs are also well below usual standards that involve cameras, OB vans, microwaves links, uplinks, et cetera. It is also very rich in terms of the variety of angles and points of view of the same event.

The niche market should be wide enough, such as the obvious limitations when it comes to resolution and colour depth, and also some concerning sound and determined by the reality of nets and terminals at the time of capturing.

As it offers the chance to work in the ways of professional production, this helps those who are not included within the hegemonic media channels to have access to the broadcasting of events, while it offers numberless experiences that can help to open the floodgates of non-professional co-operative live video. This new technology-based company that can be created after the advances developed by the Research group aims to (provided that it finds the required partners) continue with this research with the hope that it will present the general public with a trouble-free platform.

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