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Preparation stages for a live transmission of an academic event with three simultaneous room

Etapas de preparación para una transmisión en vivo de un evento académico con tres salas simultáneas

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Abstract

The results of the experience of the process of the massive transmission in synchronous form of an international congress are presented where its greatest challenge was the simultaneous transmission in three rooms with different conferences in a professional, dynamic and attractive way for all the people interested in the congress. and where the central theme was robotics. To cover the objective, it was based on analysis, planning and development as a basic methodology, as well as the use of Facebook as one of the most popular and far-reaching social networks, as well as the free tools OBS and Irium WebCam. This project highlights the effect of the transmission of this type of event on social networks, due to the continuous visits that are made to the site, thus allowing the preservation and continuous dissemination of knowledge spilled at the event through social networks.

Simultaneous transmission, CONROB, Social networks, OBS, Iris WebCam, Academic events

Resumen

Se presentan los resultados de la experiencia del proceso de la trasmisión masiva en forma síncrona de un congreso internacional en donde su mayor reto era la trasmisión simultánea en tres salas con diversas conferencias de forma profesional, dinámica y atractiva para todas las personas interesadas en el congreso y en donde la temática central fue la robótica. Para cubrir el objetivo se basó en el análisis, planeación y desarrollo como una metodología básica, así como el uso de Facebook como una de las redes sociales más populares y de mayor alcance, asimismo se utilizaron las herramientas libres OBS e Irium WebCam. En este proyecto se resalta el efecto de la trasmisión en redes sociales de este tipo de eventos, por las continuas visitas que se realizan al sitio, permitiendo así la preservación y la continua difusión de conocimientos vertidos en el evento a través las redes sociales.

Trasmisión simultánea, CONROB, Redes sociales, OBS, Iris WebCam, Eventos académicos

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Introduction

Productive institutions or service providers face multiple challenges day by day. Currently many events of daily life, such as family gatherings, social events, academics, scientists, politicians, among others, are disseminated and transmitted massively by the organizers as an important part of their agenda of activities. Each organizer or logistics group aims to highlight and preserve the most essential or transcendent activities of their event, practically many people turn to the Smartphone, since it is a tool that are at hand and can be used to stream on social networks such as Facebook, Twitter, Instagram and YouTube.

Even though it is true that it is so easy to broadcast live, if proper planning is not done, what you want to highlight, publish or disseminate, as something significant or important, will end up minimized or overshadowed. All this by not taking care of the technical aspects of a broadcast. With the COVID-19 pandemic, some videoconferencing platforms such as Meet, Zoom, Webex, Teems, among others, became popular to convene virtual meetings using only a computer and the camera integrated into it. Still some disadvantages of transmitting an event in this way, are that mobility is lost or the scene frames remain fixed when transmitting such events. Also, if the access service to a video conferencing platform is basic, access of users or focal working groups to the meeting or event is very restricted. Unlike social networks that have greater coverage and also can follow the transmission on a large variety of devices without many technical requirements.

However, if we combine the main features of social networks on the receiver side with the computer, the smartphone and some streaming program such as OBS (Open Broadcast Software), X-split, Wirecast Play, vMix or Livesstream among others on the transmitter side, it is possible to broadcast events professionally, with good quality. In addition, it can include information that allows a dynamic and more fluid communication, which includes logos, identification tags, commercials, changes of programmed scenes without the audience feeling out of control by the path of the camera abruptly or feel bored because a single angle is presented for a long time (WeAreContent.com, 2022).

This article presents the way in which the transmission of an International Congress like COMROB 2022 can be organized through the social networks Facebook and Youtube and it can be useful for those organizers who want to broadcast their event in a professional way. For this purpose a generic and intuitive methodology was proposed that consists of three stages:

- Analysis
- Planning
- Development

The analysis stage discusses what is intended to be transmitted? On which platforms? What are the characteristics of the event to be transmitted? it analyzes if you have the human and technological resources to carry out the transmission and how it will be performed (Graham, 2022). In the planning stage, it is proposed to develop a schedule of activities to be carried out, which includes the dates and times of transmission, objectives, managers, participants, location, equipment and software. Also in the last stage is carried out the planning or development to achieve the transmission in a professional way.

The following explains how the methodology was applied.

Analysis Stage

The problem that was raised is: The transmission of the International Congress of Robotics called COMROB 2022, which would be carried out with simultaneous conferences given in three different rooms and in days of 8 hours for three days. It was determined to transmit the COMROB 2022, through the official Facebook page of the Institute of Basic Sciences and Engineering (ICBI) from the Autonomous University of the State of Hidalgo (UAEH) (ICBI-UAEH, 2022) and the official website of the congress (CONROB, 2022). The main problem that had to be resolved was the simultaneous transmission of the conferences of three different rooms of the UAEH, which would be held in the Josefina García Quintanar Auditorium and the Agustín Ramos and Gonzalo Marté Rooms.

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Likewise, it was analyzed if they had the human and technological resources to achieve it. So it was thought to make a selection of the students who studied the subject of multimedia systems of the Computer Science. They chose the most apt in the editing of images, audio and video, since they had to prepare scenarios prior to the transmission. As well as that the students or members had knowledge of the tools to use. It was also required of personnel who knew and could make decisions in moments of pressure in a live broadcast, such as in moments when the transmission is down, the internet speed decreased, or a device stops working. Since that, the hardware and software tools were identified that were needed to make the transmission of each of the spaces where conference sessions were held simultaneously (Graham, 2022), (WeAreContent.com, 2022).

The proposed tools are: OBS and Irium WebCam, the first was selected because it is free software, it allows the creation of scenes and the incorporation of various sources (screens, microphones, cameras, electronic presentations), effects. It also contains configurable tools that allow transmission to different social networks.

Irium WebCam software enables up to four phones to be activated as a webcam with HD resolution, low latency and direct wired or WiFi connection (OBS Studio, 2022), (Iriun.com, 2022).

Planning stage

In this phase, the following activities were carri ed out:

- Selection of transmission team members.
- Training of members.
- Selection and identification of available e quipment to use or if necessary to purchase them.
- Design the templates and formats that will enhance the transmission such as: headings, intros, logos, visual backgrouns , musical backgrounds, among others
- Visits and practices on the streaming site.
- Schedule where dates, times, objectives, managers, participants, place of activity a re established.
- Event broadcast.

Development Stage

At this stage, the previous plans were followed, which are detailed below.

Selection of transmission team members

From the fifth and sixth semester those students who showed greater skill in the design of multimedia systems like image editing, audio, video, video streaming, knowledge of social network, management, work under pressure, capacity in decision making when working with stress, in addition to having values of responsibility, initiative, creativity, were selected.

Of these, 24 chosen students, eight were assigned per room, and four per shift in each of the rooms, since the broadcast schedule was from 9:00 am to 4:00 pm for three days as well as one responsible teacher per room.

Training of members

It is difficult sometimes that all members know all the tools to use. Therefore, the selected were trained in the use of the OBS, this software was selected for its capabilities and features to make live broadcasts.

Figure 1 Multimedia Lab Training Room

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They were trained in the use of Irium WebCam, which was installed on three computers one for each room with the use configuration of four cameras simultaneously, as well as installed in six cellphones two for each room which must connect to the same network segment to which each computer connects wirelessly so that they can communicate. Figure 1 shows the group of students training in the use and installation of Irium WebCam software.

Selection and preparation or adaptation of hardware and software

One of the most important activities is to have prepared and tested each equipment that will be used in each room at least one day in advance. Otherwise we can have very unpleasant results, not only in the technical part as could be an outdated transmission. Also sought that there was harmony in the group of people in charge of the transmission, the relationship between people during the execution of a project can be seriously damaged by not fulfilling the commitment, this feeling of non-compliance is increased since the event is not only local, but would be seen massively by a very large external population, and of course we all want to give our best image. (Plaza, 2020)

The minimum equipment required for each room is as follows:

- An i5 or i7 computer with 16 GB RAM or higher.
- An ambient microphone, with connector to the computer (mini plug).
- A Full HD video camera.
- A video capture card
- Three triples for the camera and cell phones.
- Two Smartphones.
- Internet connection whose upload speed is at least 30 Mbps or higher.
- It was determined to broadcast on social networks Facebook and YouTube.

Design the templates and formats that will enha nce the transmisión

Generic templates or interface diagrams must be developed to show the information in an orderly and harmonious way, the distribution of actors such as electronic presentations, monitors, lecturers, audience in the forum (Dondé, 2020) must be taken into account. Below are the main templates of the scenes developed. Figure 2 shows Scene 1, which is used to start each presentation starting an introductory video to the congress with a format of 1280 x 1080 pixels and on it will appear the text “At a time we started”.

Also at the bottom it shows a slipper in motion with the logos of the sponsors. In Figure 3 It is showed the design of Scene 2 where the title of the presentation and the image of the speaker captured by a camera are displayed, and at the bottom the supplementary data of the speaker. In Figures 4 and 5 are presented the templates corresponding to scenes 3 and 4 in which the presentation with different views is presented. Scene 5 shown in Figure 6 displays a closing video of the presentation and the announcement of “We start in a moment”, it should be noted that the exposure time of each of the scenes is between 25 and 30 seconds in order to create an attractive, dynamic and professional transmission.

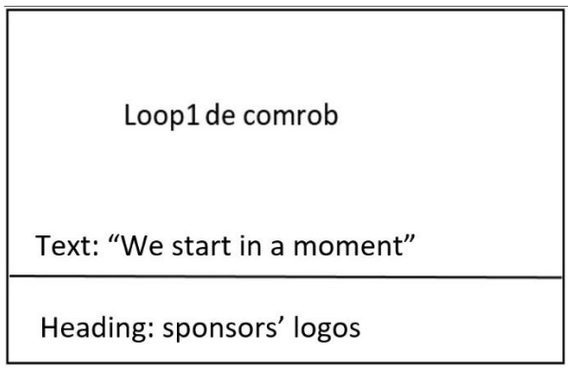

Figure 2 Template for Scene 1

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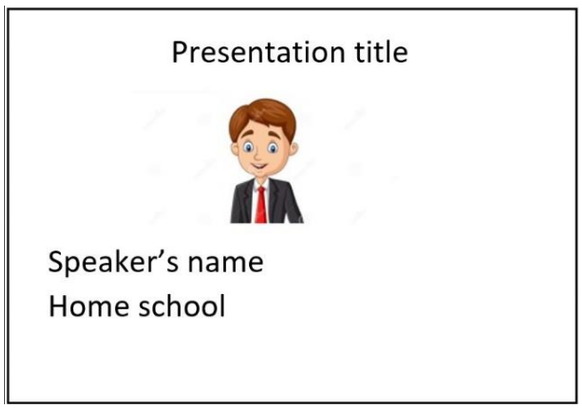

Figure 3 *Template for Scene 2*

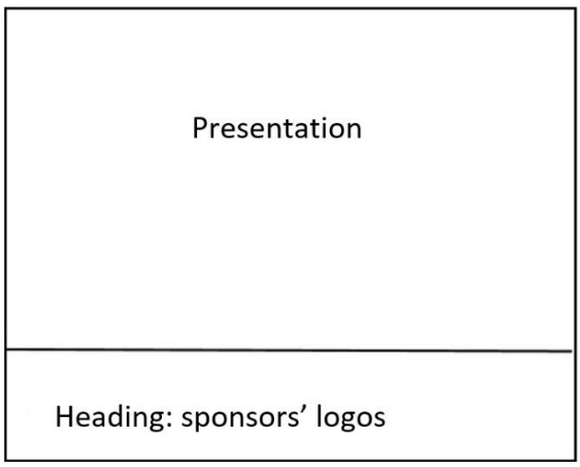

Figure 4 *Template for Scene 3*

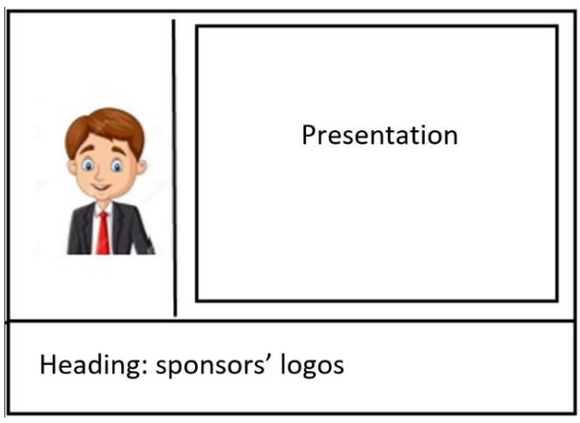

Figure 5 *Template for Scene 4*

Figure 6 *Template for Scene 5*

Figure 7 ComRob 2022 Conference Program

Each conference manager must have the program of the conferences that includes schedules of the presentations, titles, authors, exhibitors, academic degrees, additional information as representing institution, position or outstanding function that performs, important achievements worth mentioning an more. It is also important to recognize the institutions or companies that have promoted the development of the event as participating universities or sponsoring companies and for this you must have their logos or official digitized shields. Figure 7 shows the Event Program Image.

Some templates can be prepared in advance but others must be updated at the last minute or in real time, such as the case where the main author scheduled does not present and the presentation is made by a co-author, but other templates or videos must be ready, because they will not change, such as the videos of start, end of recess, start of questions, etc. An example of the templates prepared is shown in Figures 8 and 9 and correspond to the videos of intro and end of each conference.

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Figure 8 Heading: Enter to start conferences

Figure 9 Heading: End to place at the end of each lecture

Event Broadcast life visits to the place where the it was done

At least three visits were made to the auditorium and the rooms where the conferences were held, in order to get to know the place and identify the strategic places to place the equipment, in addition to knowing the network resources available and in the third visit a test was carried out.

Broadcast of the event

Broadcasting the event process consisted of enabling 3 rooms where the exhibitions were held simultaneously, one of them was in the Josefina García Quintanar Auditorium, with capacity for 500 people, the second was Sala Agustín Ramos and the third Sala Gonzalo Marté, both with capacity for 40 people. Both in the auditorium and in the halls, the equipment was installed as planned to cover the lectures, face-to-face lectures and synchronous virtual presentations, allowing greater flexibility to speakers from other countries.

Eight people were assigned to each room in two shifts, this is four people per shift. One person was in charge of the computer and the transmission of the conferences to the social networks through the OBS software, also this person has the task of loading the scenes as planned, so that the intro of the conference, the speaker with his presentation, the full-screen presentation and the video of the end of the lecture will go on air. And the other three are camera people, and they're tasked with having three different shots: full shot, American shot and midshot.

Considering that the broadcast was in three simultaneous rooms to a single channel, Facebook is activated in one room and the OBS in each of them through the following steps:

1. Sign in to Facebook with the official ICBI account.
2. Tap the start live video icon.
3. Generate transmission code.
4. Fill in the description “Event Details”, from the Facebook live video being transmitted.
5. Go to the OBS settings in the broadcast section and write the code generated by Facebook, and by pressing accept automatically Facebook receives the data from OBS.
6. To start, press the broadcast button on Facebook.
7. So far it is only being broadcast in one room, if we want to include another room you must repeat steps 3 to 6, maximum 3 rooms, which is a restriction of Facebook.
8. On Facebook, the official page of the CONROB was cross-posted
9. To end the transmission press the end of transmission button on Facebook.
10. And press the “Stop Transmitting” button on the OBS.

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Below are some pictures and links of the broadcast in the different rooms. Figure 10 and Figure 11 show the scenario where the students are performing the transmission of the event from different rooms.

Figure 10 Students broadcasting in the Josefina García Quintanar Auditorium.

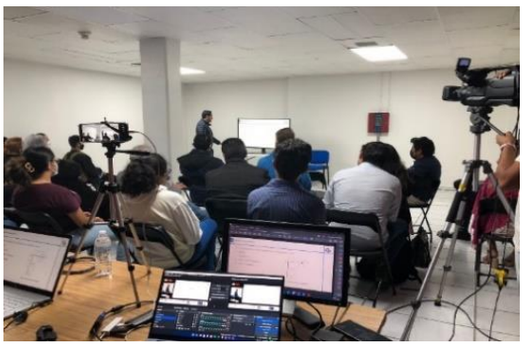

Figure 11 Students broadcasting in the Agustín Ramos Hall.

Results

The transmission of the event took place in a timely and smooth manner as planned as can be witnessed in the transmissions on Facebook through the league https://www.facebook.com/watch/live/?ref=watch_permalink&v=799366337838254 (ICBI-CONROB 2022, 2022a) that corresponds to the room of the Josefina García Quintanar Auditorium, league of the transmission of conferences of the Room Agustín Ramos and Gonzalo Marté https://www.facebook.com/watch/live/?ref=watch_permalink&v=5376281229148638 (CONROB 2022, 2022 b), https://www.facebook.com/watch/live/?ref=watch_permalink&v=3293232410914628 (CONROB 2022, 2022 c).

Figures 12 and 13 also show how the conference was conducted live and Figures 14 and 15 show how the conference looked like through the social network

Figure 12 *Live Speaker at Gonzalo Marté Hall.*

Figure 13 Live speaker at the Josefina García Quintanar Auditorium.

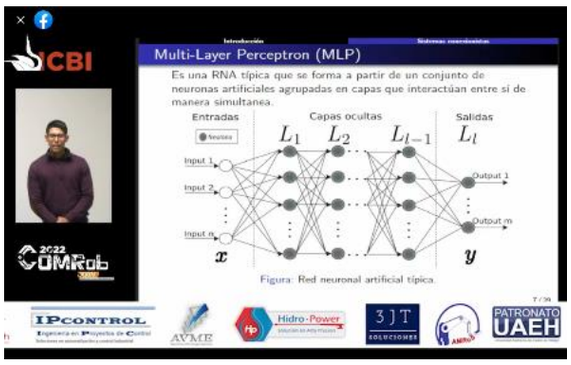

Figure 14 View in social networks of exhibition in the Gonzalo Marté room.

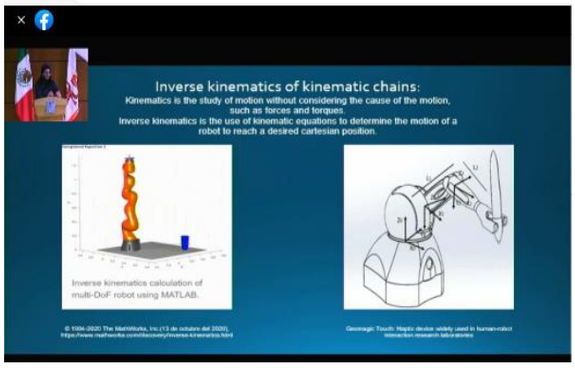

Figure 15 View in social networks of exhibition in the Auditorium Josefina García Quintanar.

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You can also see in Figures 14 and 15 different ways to show the presentation of the exhibitor theme, in Figure 14 it is to show a balance between the exhibitor and the presentation without losing sight of the main objective and Figure 15 gives a little more emphasis to the presentation, so the exhibitor is only shown in a small box, also in Figure 16 shows the integration of ribbons where additional information is included, name of the speaker, title of the presentation or logo of sponsors.

Figura 16 *Vista en redes sociales de exposición en la sala Gonzalo Marté.*

Conclusion

The Covid-19 pandemic has forced the development of digital skills and the acquisition of knowledge in the transmission of information through social networks for the dissemination of scientific outreach events, and although many scientific events have retaken in person, we can conclude eight months after the event and after consulting the statistical data of the Facebook page, which continues to fulfill the role of the dissemination of knowledge by universities in a free and massive way not only nationally, but also internationally, Figure 17 shows the number of people who have consulted the Facebook Social Network of the CONROB, in the last 28 days which amounts to 237 users and Figure 18 shows a statistic of the audience which corresponds to 65.6% of men, 34.4% of women and access to information is made by a young population ranging from 25 to 34 years, also the population of users are distributed in nine countries around the world, highlighting the presence of Mexico.

It can also be concluded that streaming live video is relatively easy, given the evolution of ICT, but it requires the integration of multiple knowledge, ranging from image editing, audio, video, streaming, design, in addition to having the basic knowledge of a cameraman. Do not forget that it is necessary to adopt a methodology as basic as this is, as it will help us to organize the essential processes of transmission.

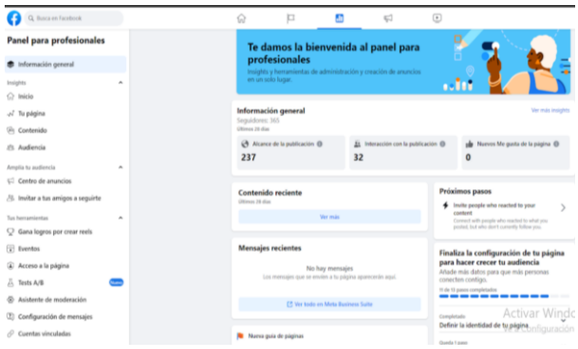

Figure 17 28-day Facebook conference access statistics.

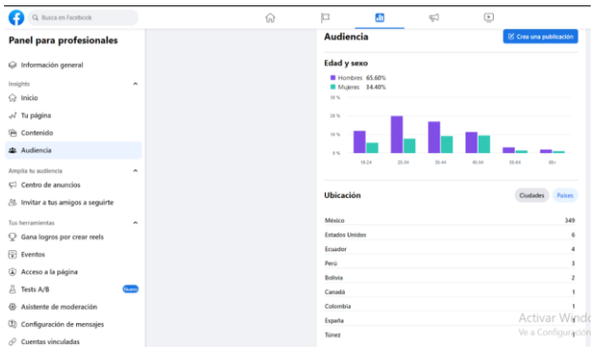

Figure 18 Statistical graph of access to conferences on Facebook.

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