Empirical Study on Broadcast & Earth Station Operation of SOMOY TV Limited

Submitted By
Kazi Mostafizur Rahman
ID: 162-19-1903

This Internship Report is presented in partial fulfillment of the requirements of the Degree of Bachelor of Science in Electronics and Telecommunication Engineering

Supervised By
Engr. Md. Zahirul Islam
Assistant Professor
Department of ETE
Daffodil International University

Daffodil International University
Dhaka – 1207, Bangladesh
January – 2020

Approval

This Internship Report Titled "**Empirical Study on Broadcast & Earth Station Operation of SOMOY TV**" is submitted by Kazi Mostafizur Rahman to the Department of Electronics & Telecommunication Engineering, Daffodil International University, has been accepted as fit for the partial fulfillment of the condition for the Degree of B.Sc (Hon's) in Electronics & Telecommunication Engineering & approved as to its style and guts. The Presentation will be held on January, 2020.

BOARD OF EXAMINERS

Md. Taslim Arefin
Associate Professor & Head
Department of ETE
Daffodil International University
Chairman

Dr. Engr. Quamruzzaman
Professor
Department of ETE
Daffodil International University
Internal Examiner

Ms. Tasnuva Ali
Associate Professor
Department of ETE
Daffodil International University
Internal Examiner

Prof. Dr. Saeed Mahmud Ullah
Professor
Department of EEE
University of Dhaka
External Examiner

DECLARATION

I hereby deciare that this Internship Report has been done by me under the supervision of **Engr. Md. Zahirul Islam**, Assistant Professor, Department of ETE, Daffodil International University & SOMOY TV Ltd. I also declare that neither this report nor any part of it has been submitted away for award of any degree or diploma.

Supervised by

Engr. Md. Zahirul Islam
Assistant Professor
Department of ETE
Daffodil International University

Submitted by

Kazi Mostafizur Rahman

Kazi Mostafizur Rahman
ID: 162-19-1903
Department of ETE
Daffodil International University

ACKNOWLEDGMENTS

At First, I am like to convey my gratitude to the Almighty for charitable me the right path while trying the duty.

The real sprit of achieving a goal is finished the way of quality and austere castigation. I would have never thrived in effecting my task without the teamwork, help and support provided to me by many personalities.

This internship report would not consume been possible without the provision and direction of **Engr. Md. Zahirul Islam, Assistant Professor,** Department of Electronics and Telecommunication Engineering, Daffodil International University, Dhaka, under whose direction I chose this topic.

I would like to rapid my heartiest gratitude to **Md. Taslim Arefin, Associate Professor and Head,** Department of Electronics and Telecommunication Engineering, for his kind help to surface our thesis and also to other faculty participants, the staffs of the ETE Department of Daffodil International University.

My Sincere Gratitude to Mr. Md. Amjad Hossain, Assistant System Admin, SOMOY TV & the whole IT Team for their co-operation and support through out my internship. Without their help I wouldn't be able to complete my internship and learn the things I have learnt.

I must grant with due esteem the perpetual support and endurance of my family members for final this internship.

Kazi Mostafizur Rahman

Abstract

Earthbound dissemination frameworks including link frameworks should before long convert to advanced dispersion for giving computerized video sign to link endorsers, as a result of numerous focal points related with computerized frameworks, for example, blunder amendment, information pressure, adaptability, programmability, and expanded quality and amount of administration. These favorable circumstances are prove by the expanded prevalence of advanced administrations, for example, direct computerized communicate administration (DBS), multipoint multichannel dissemination administration (MMDS), and so forth. Correspondence satellites have been utilized for a long time to transmit and disperse such link projects to link frameworks over bigger land regions. The transmission ways from ground to satellite and back to ground are called an uplink and a downlink individually. In this report, the exact investigation on communicate and earth station activity of a prestigious TV channel SOMOY TV is been tended to. The continuous servers and creation room gear usefulness is contemplated moreover.

Table of Contents

List of Figures

Chapter 1

Introduction

1.1 Introduction

Broadcasting is the dispersal of sound or video substance to a dissipated gathering of spectators by methods for any electronic mass trades medium, yet usually one using the electromagnetic range (radio waves), in a one-to-many model. Broadcasting began with AM radio, which came into surely understood use around 1920 with the spread of vacuum tube radio transmitters and authorities. Before this, a wide range of electronic correspondence (early radio, telephone, and transmit) were facilitated, with the message proposed for a lone recipient. The term broadcasting created from its use as the provincial method for planting seeds in a field by tossing them widely about. It was later received for depicting the across the board dissemination of data by printed materials or by broadcast. Models applying it to "one-to-many" radio transmissions of an individual station to various audience members showed up as ahead of schedule as 1898.Over the air broadcasting is normally connected with radio and TV, however as of late both radio and TV transmissions have started to be conveyed by link (digital TV). The accepting gatherings may incorporate the overall population or a moderately little subset; the fact is that anybody with the suitable getting innovation and gear (e.g., a radio or TV) can get the sign. The field of broadcasting incorporates both government-oversaw administrations, for example, open radio, network radio and open TV, and private business radio and business TV. The U.S. Code of Federal Regulations, title 47, area 97 portrays "broadcasting" as "transmissions got ready for social occasion by the general populace, either quick or gave off". Private or two-way media interchanges transmissions don't qualify under this definition. For example, novice ("ham") and locals band (CB) radio chairmen are not allowed to impart. As described, "transmitting" and "broadcasting" are not the proportional. Transmission of radio and TV programs from a radio or TV space to home recipients by radio waves is implied as "over the air" (OTA) or terrestrial telecom and in numerous countries requires a telecom grant. Transmissions using a wire or connection, like satellite TV (which also retransmits OTA stations with their consent), are in like manner saw as communicates, yet don't really require a permit (however in a few nations, a

permit is required). During the 2000s, transmissions of TV and radio projects by means of spilling computerized innovation have progressively been alluded to as communicating also.

1.2 About SOMOY TV

Somoy Television is a 24-hour Bengali TV slot in Bangladesh. Its central station is in 89, Bir Uttam CR Dutta Road, Banglamotor, Dhaka. It has got communicated NOC permit from the legislature of the People's Republic of Bangladesh. After the beginning of test transmission on 10 October 2010, it is financially on-air since 17 April 2011. The station is transmitted utilizing satellite Bangabandhu-1, the primary satellite of Bangladesh, worked by Bangladesh Communication Satellite Company Limited.Somoy TV is a private limited company under the broadcast media industry. The company also have nine bureaus along with nine studios in different districts from where they operates their district-based activities. Currently, 650+ employees are working for Somoy TV from that on 150 employees are journalists.

1.3 Company Profile

The Company profile of SOMOY TV is given below

Business Name	:	Somoy Media Ltd.
Business Type	:	Private Ltd Company
Certificate of Incorporation No	:	C76895/09
Telephone No	:	+88029670058-65
Email	:	vas@somoynews.tv
Cell	:	01964444500
Address	:	Nasir Trade Center 89, Bir Uttam C.R Dutta Road, Dhaka – 1205, Bangladesh.

1.4 Objective of the report

The goal of this report is to examine the insights concerning SOMOY TV, their communicate and activity systems, hardware and programming utilized in SOMOY TV and talking about my experience as an assistant in SOMOY TV.

1.5 Summary of the report

This report contains my experience as an intern at SOMOY TV. In-depth breakdown of the operations of SOMOY TV, broadcast infrastructure, equipment details, software used in broadcasting is highlighted in this report.

In the first chapter there is introduction on TV and Broadcasting. Description about SOMOY TV, their mission and vision is given. Also the objective of this report is on the first chapter.

Chapter Two is an in-depth discussion about the broadcasting procedure.

Chapter Three contains my brief about my experience as an intern at SOMOY TV.

The final and the last chapter contains Conclusion.

Chapter 2

Broadcast Working Flow & Operation

2.1 Broadcast Overview

The whole broadcast operation is very well organized and divided into sections for better organization. Ingest Room, Central Editing Panel, Program Control Room (PCR), Master Control Room, Earth Station Room, News Room these are the central parts of the TV broadcast. There are also ups room, equipment room, Make Up Room, Video Journal Room, IT Section, Online News Section, Archive room, Generator room, Graphics Section and Receiver Room (IRD), Producer Zone which supports the whole station.

2.2 Broadcast Workflow

Video and sound information are first gotten to hard circle based structures, or other electronic gathering gadgets. The information are then remote made into servers utilizing any essential transcoding, digitizing or exchange). At whatever point imported, the source material can be changed on a PC utilizing application programming, any of a wide collection of video altering programming. Modifying

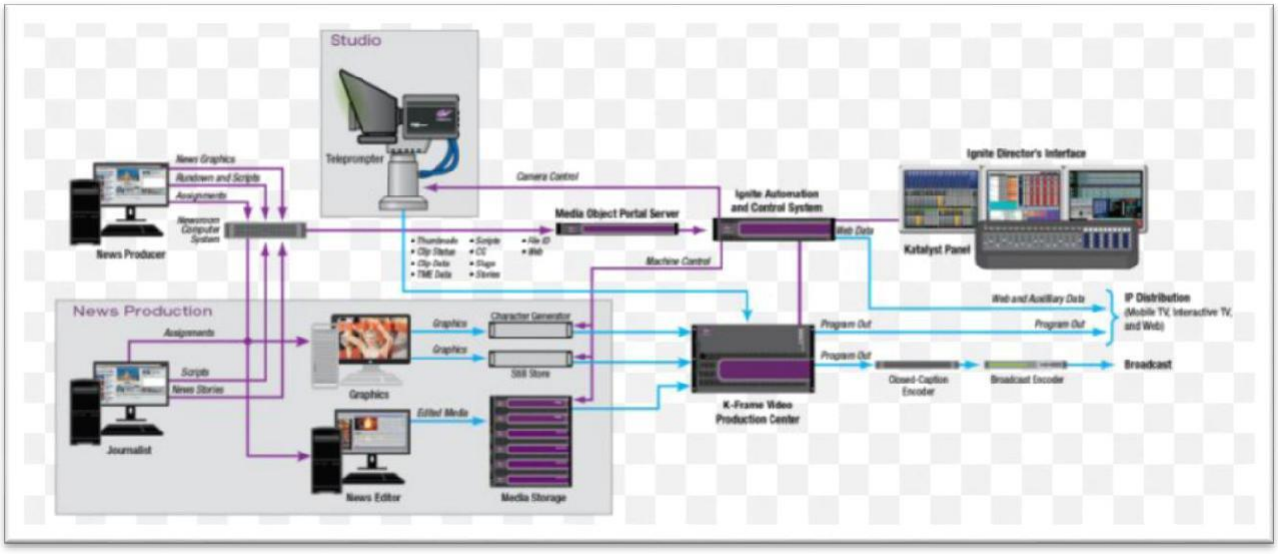

Figure 2.1 - Broadcast Workflow

programming records the distribution executive's choices in an alter choice once-over (EDL) that is exportable to other changing mechanical gatherings. Different ages and varieties of the chief source records can exist without verifying a broad assortment of duplicates, considering

remarkably flexible evolving. It besides takes off it simple to change cuts and fix past choices essentially by altering the modify choice overview (without requiring the affirmed film information recreated). Age incident is comparably controlled, due to not having to more than once re-encode the information when indisputable impacts are related. Appeared differently in relation to the straight system for tape-to-tape modifying, non-direct adjusting offers the flexibility of film changing, with self-assertive access and basic errand affiliation. In non-straight changing, the principal source records are not lost or balanced in the midst of modifying. This is one of the best central purposes of non-direct

Figure 2.2 - Vision Mixer

adjusting appeared differently in relation to straight modifying. With elective decision records, the publication chief can tackle low-objectives copies of the video. This makes it possible to modify both standard-definition impart quality and first rate convey quality quickly on PCs that probably won't be able to process epic full-quality significant standards data consistently. The

expenses of altering frameworks have dropped to such an extent that non-straight altering devices are presently inside the compass of home clients. Some altering programming would now be able to be gotten to free as web applications; a few, as Celera (concentrated on the expert market) and Blender3D, can be downloaded as free programming; and a few, similar to Microsoft's Windows Movie Maker or Apple Inc's. iMovie, come included with the fitting working framework.

2.3 Ingest Room

Ingest room is like the brain of a broadcast system. Every type of data collected from all the sources are processed and stored here first. Then the data are distributed according to the type to

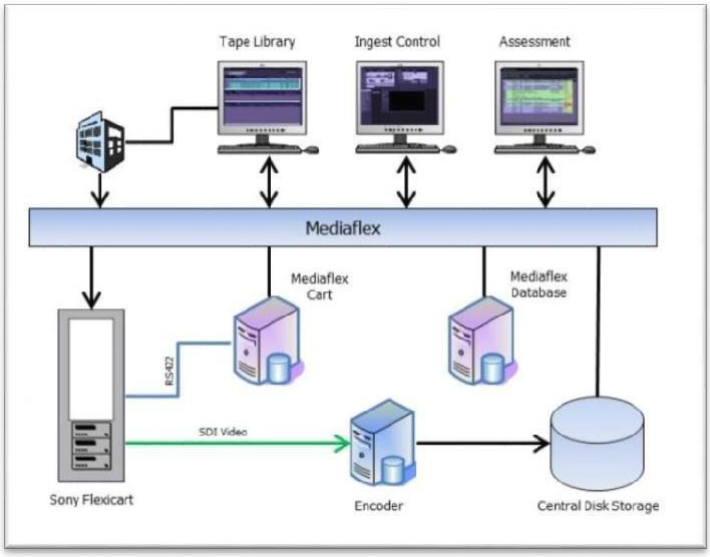

Figure 2.3 - Ingest Data Flow

the appropriate sections for further processing. Whether it is a live broadcast from studio or a remote broadcast from outdoor, live from News Room or a recorded report, International news feed from news agencies, every single piece of information collected passes through ingest room.

Figure 2.4- Ingest Room

Ingest room contains many equipment, which collect and store data. IRD equipment, Monitors, routers, IP detector etc. Various high end software are also used with this equipment's.

IRD, TFT LCD Monitor, AP News Receiver, DV Cam, multi frames. Agile modulator etc are used in SOMOY TV ingest room.

Figure 2.5- INGEST Room Rack and Machines

The picture above is the rack of SOMOY TV Ingest room. This rack contains all the equipments which are described above. Apart from those routers and switches are on these ingest racks. Processed data are passed through these routers to PCR and MCR and other destinations within the SOMOY TV network.

For live streaming SOMOY TV use live streaming solutions from TVU and TVU mobile software.

2.4 IRD

IRD stand for Integrated Receiver Decoder. This is eventually a flag recipient. The operational succession of IRD is turning around than that of the earth station. The got RF motion by LNB (low commotion blocker) is changed over to low band recurrence that is operational for IRD. The IRD procedure these low band recurrences at that point demodulate it and after that translate

it as per the encoding framework (while transmitted). Also, along these lines the coveted base-band flag is recuperated.

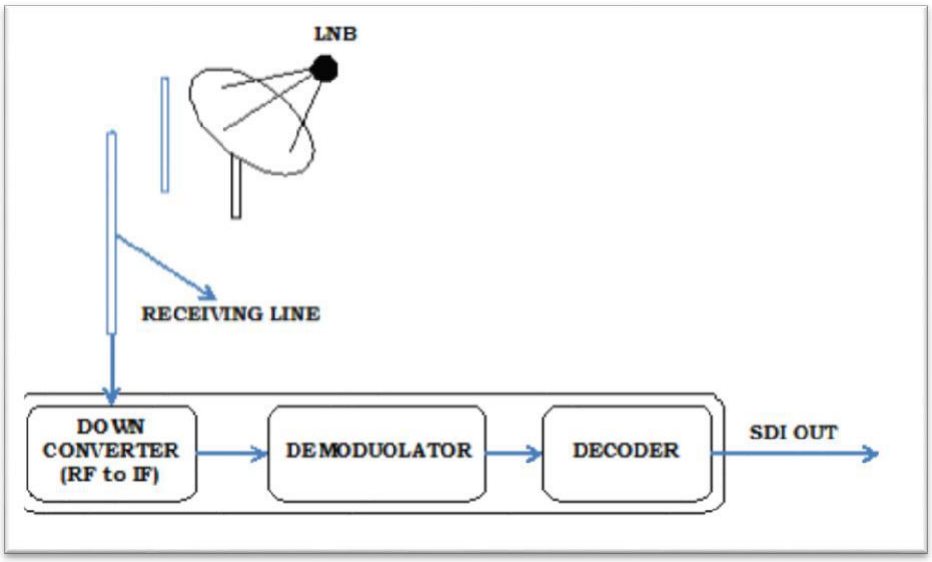

Figure 2.6 Downlink System of a TV System

Figure 2.7 - IRD Equipment of SOMOY TV

All IRD equipment at SOMOY TV are made by TANBERG, one of the leading manufacturing company of TV & broadcasting equipment. These high end receivers are collecting data continuously from various sources. A TFT LCD Monitor is attached with this receivers to for data view purpose.

2.5 Play-Out Devices

Play out can normally include AN air chain of gadgets that start with content, typically keep on a video server, and eventually yield, either as AN (Asynchronous sequential interface) (ASI)/science or (Serial Digital Interface) (SDI) for on go to a conveyance organization. The gadgets inside the chain depend upon the association required underneath the contact with the Channel. Generally, a regular TV house would require a Master the board Video whipper, and besides a Video correction to allow mercantilism of live sources. This video whipper could be a piece of particular breaking points, for instance, keying (portrayals) (by and large alluded to as Down Stream Kiers), Audio Overs for blend in voice overs (VO) or declarations, and bolster progress between occasions, for instance, a dimness through uninteresting or crossfade (for the most part alluded to as blend).

2.6 VTR Equipment

Figure 2.8 - VTR Machine

A video tape recorder or VTR machine is used for recording the data stream. This equipment is made by sony.

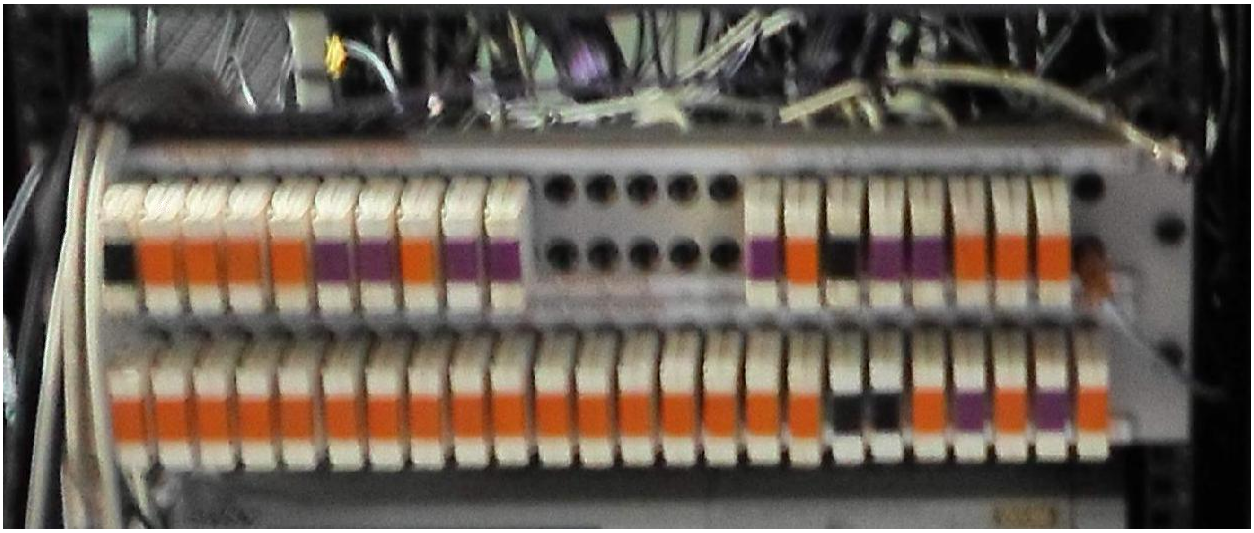

Figure 2.9 - 7800fr Mutliframe

Evertz Encoder/ Decoder, Multi Image Processor, 7800FR Mutli Frame are also used in the set up.

2.7 Program Control Room (PCR)

The creation control room (PCR) or studio control room (SCR) is the spot in a TV studio where the piece of the active program happens.

Figure 2.10 - PCR ROOM

SOMOY TV PCR room contains the following equipment and software –

- A video screen divider, with screens for program, review, VTRs, cameras, designs and other video sources. In certain offices, the screen divider is a progression of racks containing physical TV and PC screens, at least one enormous video screens, each equipped for showing various sources in a reproduction of a screen divider.
- A vision blender, an enormous control board used to choose the numerous camera arrangement and different sources to be recorded or seen on air and, much of the time, in any video screens on the set.
- A proficient sound blending console and other sound hardware, for example, impacts gadgets.
- A character generator (CG), which makes most of the names and full computerized on-screen illustrations that are embedded into the program lower third segment of the TV screen.
-

- Digital video impacts, or DVE, for control of video sources. In more up to date vision blenders, the DVE is coordinated into the vision blender; more seasoned models without worked in DVE's can

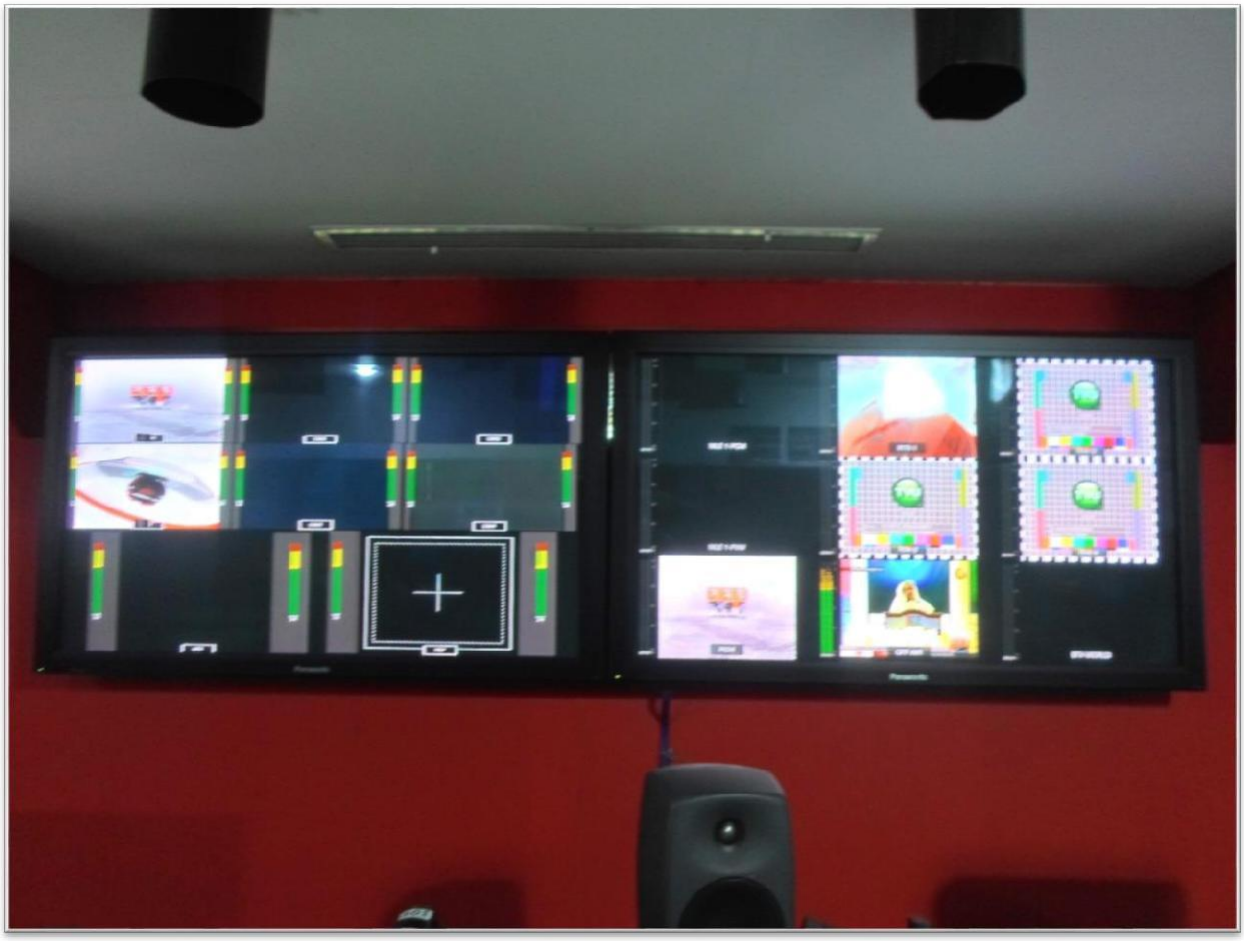

Figure 2.11 - NEWS PCR

regularly control outer DVE gadgets, or an outside DVE can be physically run by an administrator.

- A still store, or still edge, gadget for capacity of designs or different pictures. While the name recommends that the gadget is just fit for putting away still pictures, more current still stores can store moving video clasps and movement illustrations.
- The specialized executive's station, with waveform screens, vectorscopes and the camera control units (CCU) or remote control boards (RCPs) for the CCUs.
- Intercom and IFB hardware for correspondence with ability and TV group.

- A signal generator to genlock the entirety of the video gear to a typical reference that requires colorburst.

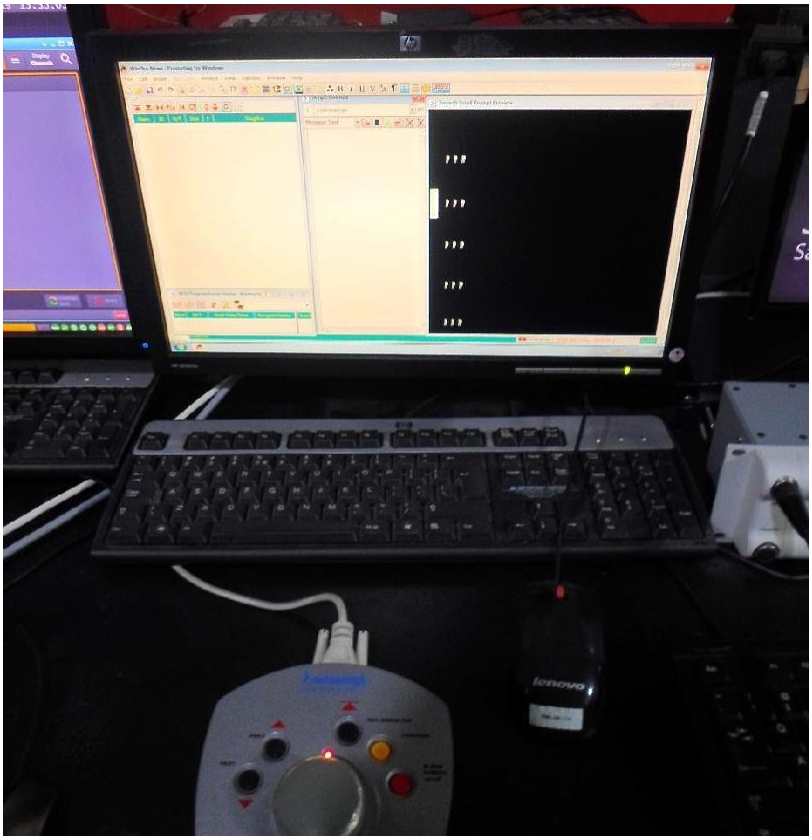

Figure 2.12 - NEWS PCR Run down controller

2.8 Master Control Room (MCR)

Ace control is the specialized center point of a communicate activity basic among most over-the-air TV slots and broadcasting companies.

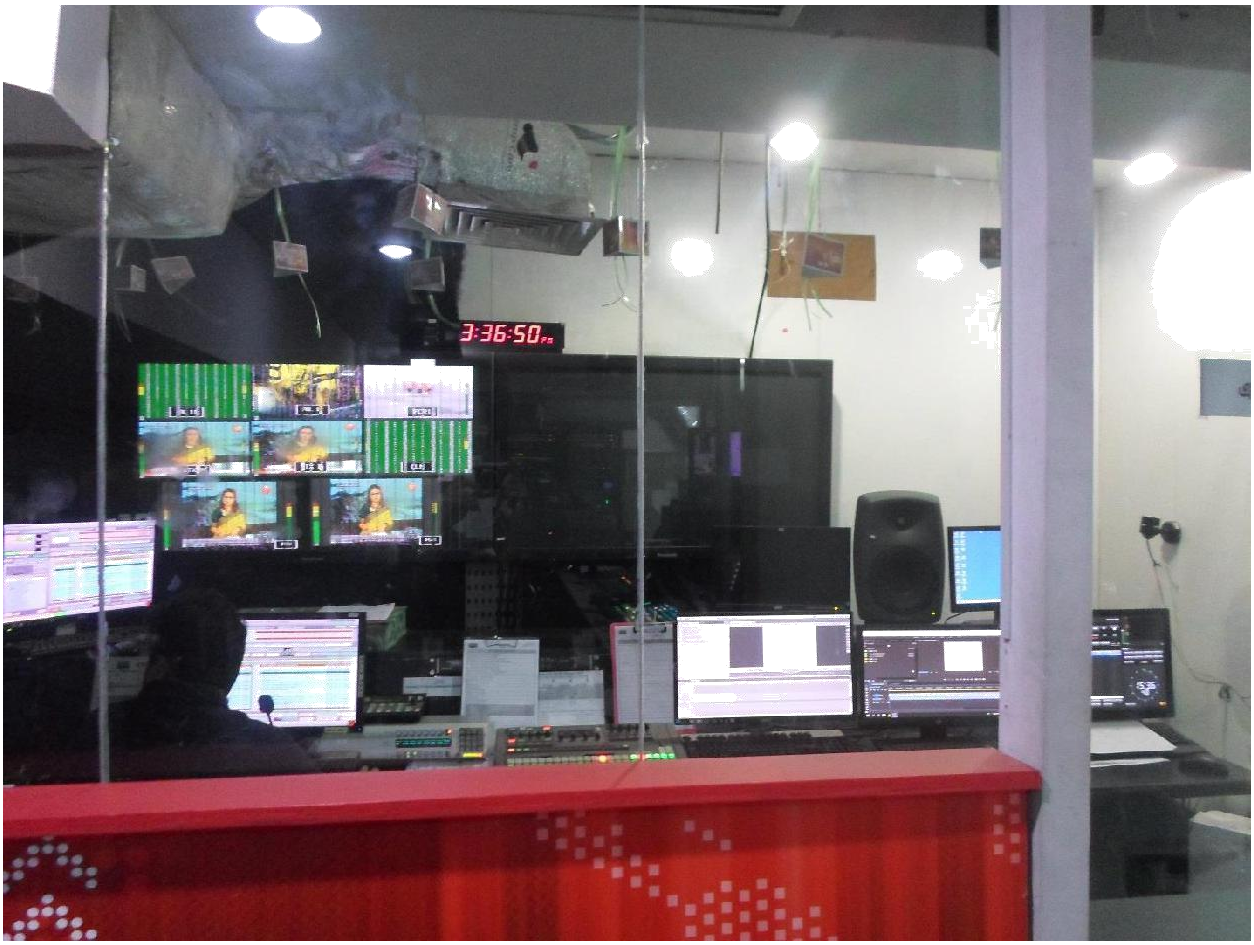

Figure 2.13 - MCR Room

Ace control is the last point before a sign is transmitted over-the-air for earthbound TV or cablecast, satellite supplier for communicate, or sent on to a digital TV administrator. TV ace control rooms incorporate banks of video screens, satellite beneficiaries, tape machines, video servers, transmission gear, and, all the more as of late, PC communicate mechanization hardware for recording and playback of TV programming.

Figure 2.14 - MCR Control Machine

At SOMOY TV. All output from PCR comes to MCR via cable using EVS Software.

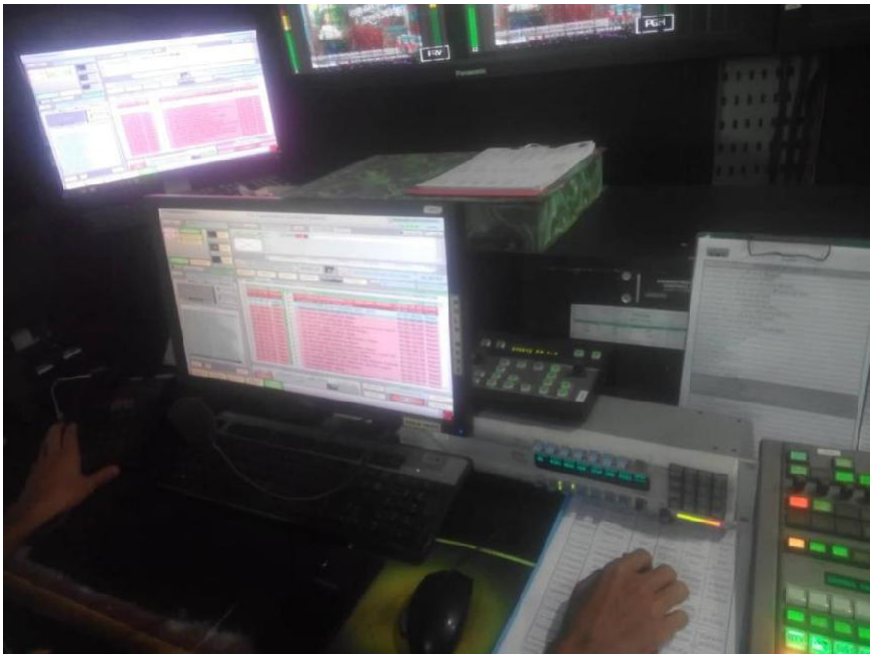

Figure 2.15 - MCR EVS Panel

From MCR All the output goes to Earth Station via cable.

2.9 News Live Section

A newsroom may be a central space wherever journalists, reporters, editors, and producers, along with different cluster of staff work to gather data to be denote in a very newspaper and/or a web newspaper or magazine, or broadcast on radio, television, or cable. Some journalism businesses refer to the newsroom because the city area. the thought of "newsroom" might to boot currently be used by some packaging practitioners, as representatives of organizations and firms, with the intent to influence or produce their own "media"

2.10 Camera Control Unit

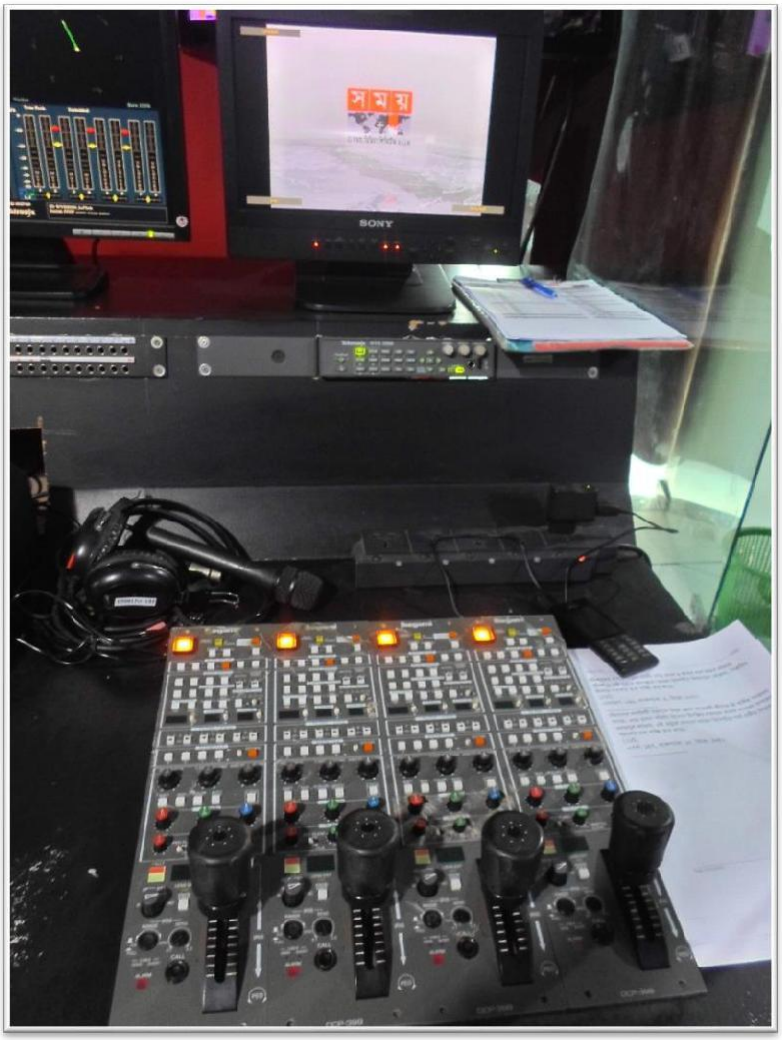

Figure 2.16 - Camera Control Unit

The camera control unit (CCU) is normally part of a live transmission chain. It is responsible for driving the master camcorder, managing gives sent up the camera connect to and from the camera, and can be used to control diverse camera parameters remotely.

2.11 Broadcast Newsroom TV Studio

Broadcast newsrooms are very just like newspaper newsrooms. The two predominant differences are that those newsrooms encompass small rooms to edit video or audio and that in addition they exist next to the radio or tv studio.

2.12 Non Linear Editing

Figure 2.17 - Video Editing Panel at SOMOY TV

Non-harming altering is a state of sound, video, or picture changing in which the first substance isn't constantly adjusted inside the course of upgrading; rather the alters are exact and altered by means of particular programming. A pointer-based playlist, reasonably a modify decision summary (EDL), for video or a planned non-cyclic outline for still previews is used to uncover adjusts. Each time the modified sound, video, or picture is rendered, played back, or were given to, it's miles revamped from the essential inventory and the predefined evolving steps. Regardless of the reality

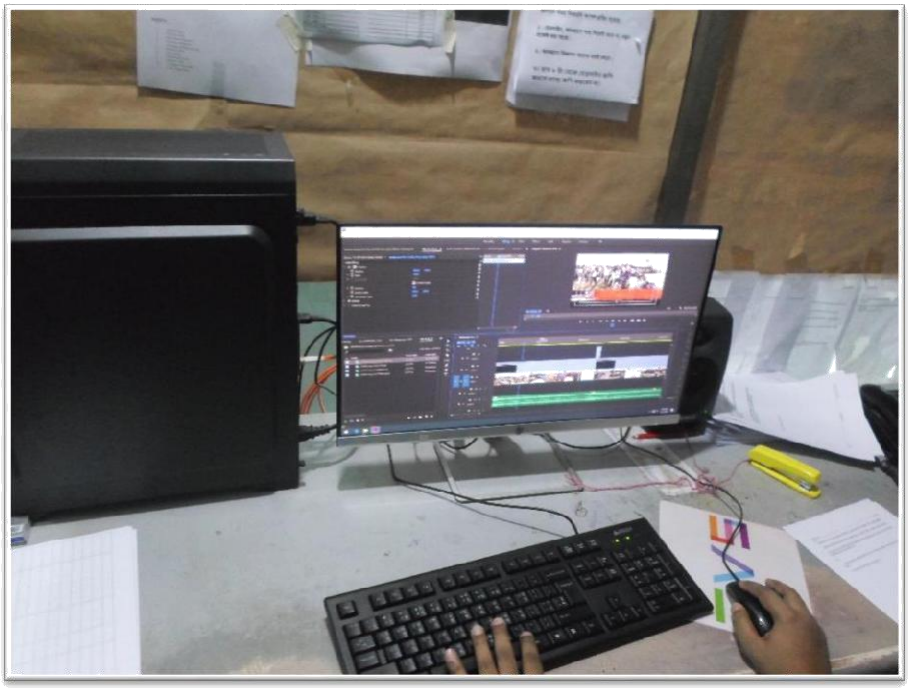

Figure 2.18 - Audio Edit Panel

that this strategy is more computationally raised than direct modifying the primary substance, changing adjusts themselves can be especially transient, and it envisions encourage age setback as the sound, video, or picture is modified. A non-straight altering framework (NLE) is a video (NLVE) or sound adjusting (NLAE) virtual sound workstation (DAW) gadget that performs non-unfavorable altering on supply material. The call is as opposed to twentieth century procedures of straight video adjusting and film altering.

2.13 Basic Techniques

A non-direct fixing strategy might be used once all endowments are open as archives on video servers or challenging plates, instead of records on reels or tapes. though straight altering is sinking to the need to progressively watch motion picture or hear tape, non-direct unique permits oversee access to any video plot during a motorized video cut, while despising or clean/help through near to movie to achieve it, as is major with video tape straight modifying frameworks. while ingesting sound or video bolsters, information are associated with the affix. Those information might be associated a while later (time code, limitation, take assortment, name of the catch) or physically (players' names, characters, in redirections: red card, goal...). it's then potential to actuate to any edge by coming into fundamentally the time code or the sensible information. a publication boss will, for example unendingly finish inside the Olympic Games,

with progress recover each of the attaches related with the players United Nations office got a gold decoration. The non-direct fixing technique is near in plan to the reorder ways used in IT. Be that since it could, with the work of non-direct fixing structures, the ruinous showing of cutting of flick negatives is exhausted. It will moreover be seen in light of the fact that the sound/video likeness information preparing, that is the reason it's alluded to as work area video bit of composing inside the customer region.

2.14 Graphics Section

Graphic designers build visual concepts, utilizing computer programming or by hand, to convey thoughts that encourage, illuminate, and. charm patrons, they build up the overall format and creation set up for various applications, for instance, notices, leaflets, magazines, and company reports. Visual depiction is that the procedure of visual correspondence and significant thinking victimization typography, photography and illustration. the sector is seen as a set of visual correspondence and correspondence layout, nevertheless occasionally the articulation "visual computerization" is employed synonymously. Visual originators build and merge photos, photos, and substances to form visual depictions of issues and messages. They use typography, visual articulations and page set up a methodology to form visual unions. traditional businesses of visual mechanization consolidate company arrangement (logos and stamping), production layout (magazines, on daily basis papers and books), approach finding or biological framework, business, web site style, correspondence diagram, issue packaging, and accumulation.

2.15 IT Section

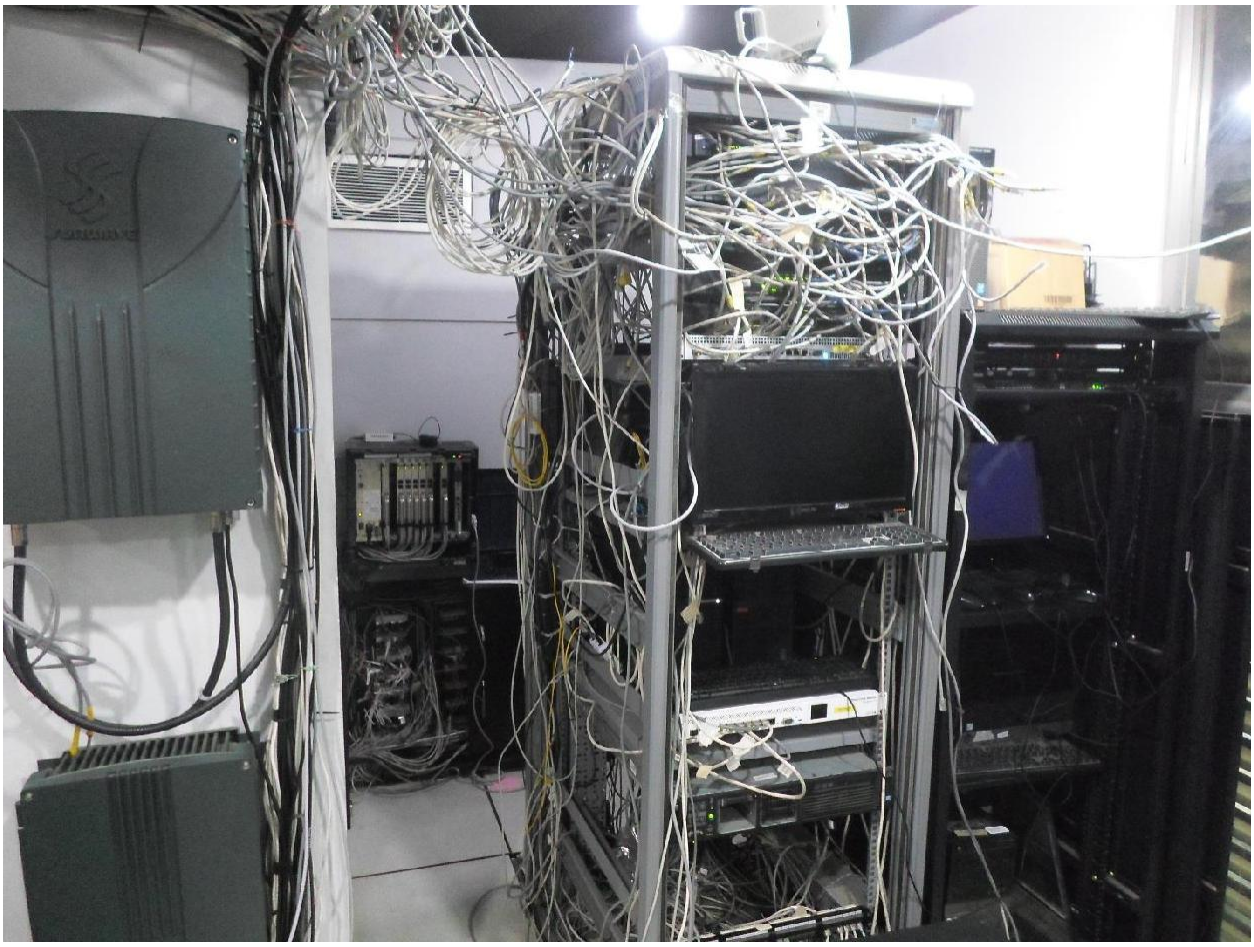

Figure 2.19 - IT ROOM

The whole work flow of the broadcast also depended on the IT. Some people are there who controlled it manually & sometimes it is totally on software base.

2.16 Archive Section

Archive section controls everything relevant to the channel .The big video files comes through the FTP server. Archive at SOMOY TV is entirely automated. It works with 2 sorts – one. on-line & two. Offline. each is controlled manually.

2.17 UPS Room

There are UPS setup within the SOMOY TV as a result of if the electricity gone then it'll return up until three seconds till the generator begin. If the generator fail to start out it will return up until forty min. UPS powers are 120KVA.

2.18 Generator Section

There are two generators in the basement to back up the whole channel programed. Now some important things which is very essential in the television channel for broadcast.

2.19 Central Equipment Room

Central Equipment Room (CER) has all the cable connected through the machines. Air conditioning temperature is dependably 18 to 19 degree. In communicate offices, a focal contraption room (CAR, articulated "C-A-R"),focal machine room, or focal hardware room (CER), or focal specialized region (CTA), or rack room is the place shared gear normal to every single specialized region is found. Some

Figure 2.20 –Central Equipment Room

communicate offices have a few of these rooms. It ought to be cooled; anyway low-commotion determinations, for example, acoustical medications are discretionary. Gear is associated either straightforwardly with a connected foldout screen, console and mouse or remotely by means of KVM switch, SSH, VNC, or remote work area.

Chapter 3

Earth Station

3.1 Definition Of Earth Station

An earth station is an assortment of hardware introduced on the world's surface that empowers correspondences more than at least one satellites. Earth stations comprise of a reflector recieving wire (or explanatory dish), a feed framework to send and get the RF bearer, information taking care of hardware and mechanical following gear to keep the satellite inside the radio wire's information send/get region. Earth stations are commonly claimed by the organization accepting the information from the satellite system, along these lines must work inside certain predetermined parameters to keep up the system's soundness. Earth stations are a piece of a satellite system's ground portion, which comprises of all earth stations working in a satellite framework. These can be associated with the end client's gear straightforwardly or by means of an earthbound system.

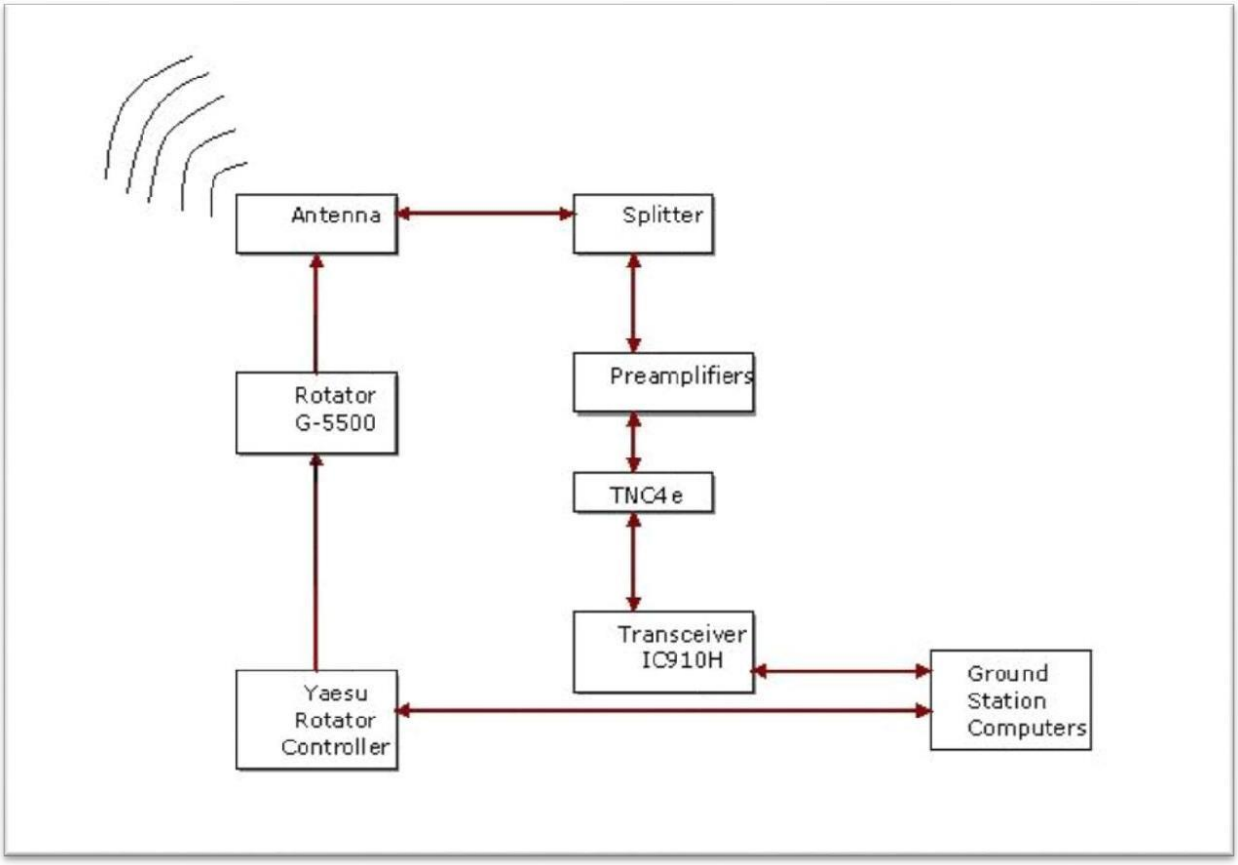

Figure 3.1 - Block Diagram of an Earth Station

We can simply perceive the operating of an earth station from the figure. There are four major subsystems that are gift in any earth station. Those are transmitter, receiver, antenna and following scheme.

3.2 Earth Station Operation Summary

Earth operation is divided in the following segments

3.2.1 Transmitter

The twofold (computerized) information enters at base band instrumentality of earth station from earthbound system. Encoder incorporates blunder adjustment bits in order to constrict the bit mistake rate.

In satellite correspondence, the Intermediate Frequency (IF) is picked as seventy rate by utilizing an electrical gadget having data proportion of thirty six MHz. Essentially, the IF can even be picked as a hundred and forty rate by employing a electrical device having information measure of either fifty four MHz or seventy two MHz.

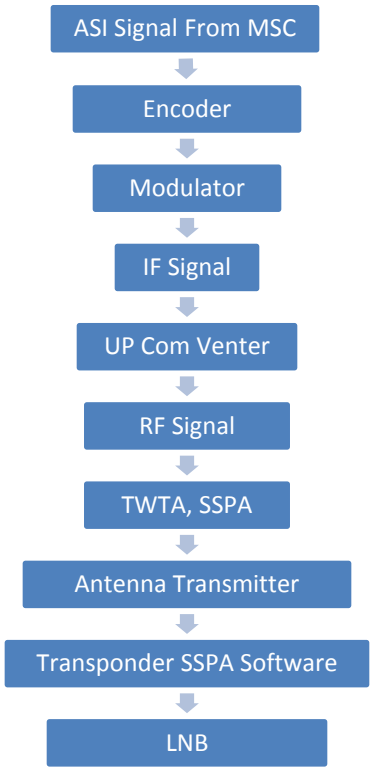

Figure 3.2– Uplink dataflow diagram

Up gadget plays out the recurrence transformation of regulated sign to higher recurrence. This sign will be enhanced by exploitation High power electronic gear. the planet station radio wire transmits this sign.

3.2.2 Receiver

During gathering, the planet station reception apparatus gets downlink signal. this can be a low-level adjusted RF signal. All in all, the got sign are having less sign quality. Along these lines, to intensify this sign, Low Noise electronic hardware (LNA) is utilized. on account of this present, there's AN improvement in Signal to Noise quantitative connection (SNR) cost.

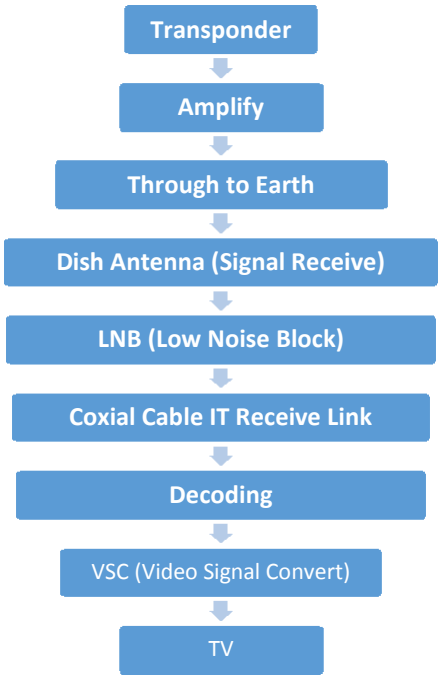

Figure 3.3– Receiver dataflow diagram

RF signal are often down regenerate to the Intermediate Frequency (IF) price, that is either seventy or one hundred forty MHz. Since, it's easy to pull at these transitional frequencies.The work of the decoder is essentially inverse to it of encoder. In this way, the decoder delivers a misstep free parallel information by expelling mistake rectification bits and rectifying the bit positions assuming any. This double information is given to base band instrumentality for more procedure thus conveys to earthbound system.

3.3 SOMOY TV Earth Station

Photos of SOMOY TV earth station is given below along with some equipment photos.

Figure 3.4 - SOMOY TV Earth Station Equipment

3.3.1 Antenna

Earth station recieving wire fundamental perform is that RF signal from the transmitter becomes non-particulate radiation that situate reason to the Satellite and emanate, though the radio wire can move the frail vitality of non-particulate radiation from Satellite to high-recurrence signals with effectiveness and sent to getting instrumentality. at some point the planet station recieving

wire has the alternatives of high increase, low angle flaps, vigorous radiation and low clamor. The recieving wire principle detail is that the reception apparatus gain, radio wire radiation graph, shaft width, side projection, commotion temperature and Polarization… and so forth.

Figure 3.5– Antenna

There are four types of antenna used in an earth station

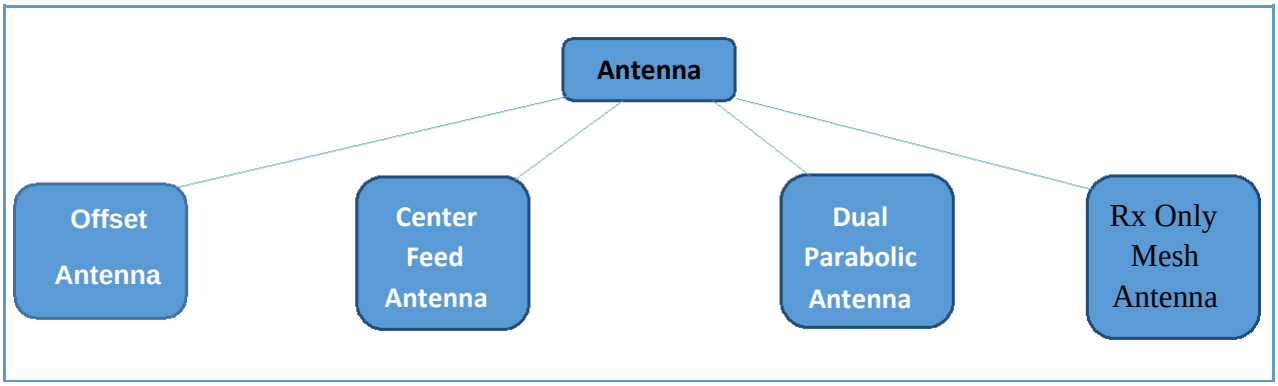

Figure 3.6– Antenna

3.3.2 Earth Station System Controller

An earth station system controller is used to control all the system installed in a station. It is the master controller.

Figure 3.7– Earth Station System Controller

3.3.3 SSPA Main & Back Up

SSPA represents Solid State Power Amplifier. SSPA comprises of enhancer gadgets, control dividers and power combiner. One of the upsides of SSPA is that any yield arrange intensifier gadget disappointment doesn't result into disappointment of SSPA all in all. Be that as it may, when driver arrange enhancer bombs the yield sign will be lost totally.

Figure 3.8- SSPA Main& Back Up

Figure 3.9- Up Converter Main & Back Up

3.3.4 Live Stream Encoder

An encoder is a gadget or application that takes your substance and changes over it into a computerized configuration to stream.

Figure 3.10- Live Stream Encoder

Chapter-4

Satellite Communication

4.1 Satellite Communication

Satellite correspondence, in broadcast communications, the utilization of counterfeit satellites to give correspondence connects between different focuses on Earth. Satellite correspondences assume a crucial job in the worldwide media communications framework. Around 2,000 fake satellites circling Earth transfer simple and computerized signals conveying voice, video, and information to and from one or numerous areas around the world. (Labrador, 2019)

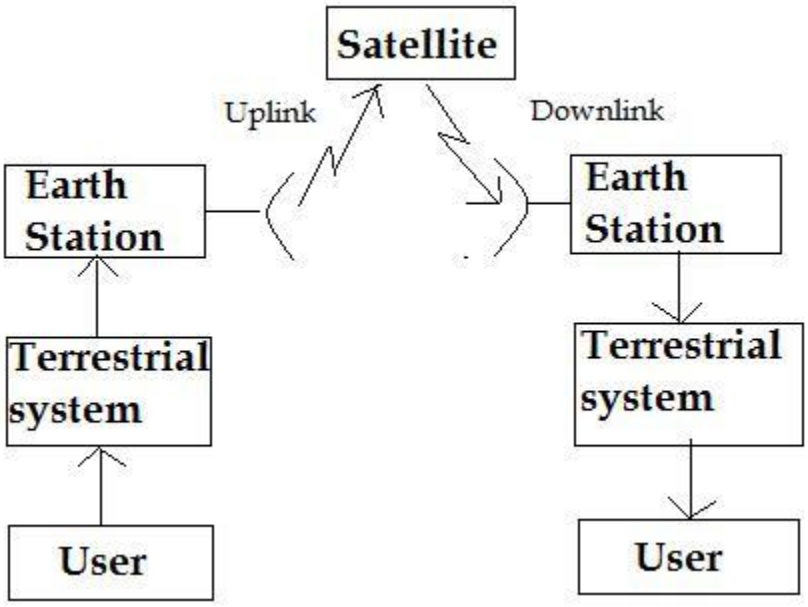

Figure 4.1-Satellite Communication Block Diagram

The recurrence with which, the sign is sent into the space is called as Uplink recurrence. Correspondingly, the recurrence with which, the sign is sent by the transponder is called as Downlink recurrence. The accompanying figure outlines this idea obviously.

The transmission of sign from first earth station to satellite through a station is called as uplink. Also, the transmission of sign from satellite to second earth station through a station is called as downlink.

Uplink recurrence is the recurrence at which, the principal earth station is speaking with satellite. The satellite transponder changes over this sign into another recurrence and sends it down

to the subsequent earth station. This recurrence is called as Downlink recurrence. In comparative manner, second earth station can likewise speak with the first.

The procedure of satellite correspondence starts at an earth station. Here, an establishment is intended to transmit and get signals from a satellite in a circle around the earth. Earth stations send the data to satellites as powerful, high recurrence (GHz run) signals.

The satellites get and retransmit the sign back to earth where they are gotten by other earth stations in the inclusion zone of the satellite. Satellite's impression is the region which gets a sign of helpful quality from the satellite.

4.1.1 Advantages & Disadvantages of Satellite Communication

There are numerous Advantages of satellite interchanges, for example, –

- Flexibility
- Ease in putting in new circuits
- Distances are effectively taken care of and expense doesn't make a difference
- Broadcasting potential outcomes
- Each and each side of earth is secured
- User can control the system Satellite correspondence has the accompanying impediments
- The introductory costs, for example, section and dispatch costs are excessively high.
- Congestion of frequencies
- Interference and proliferation

4.2 Direct Broadcast Satellite

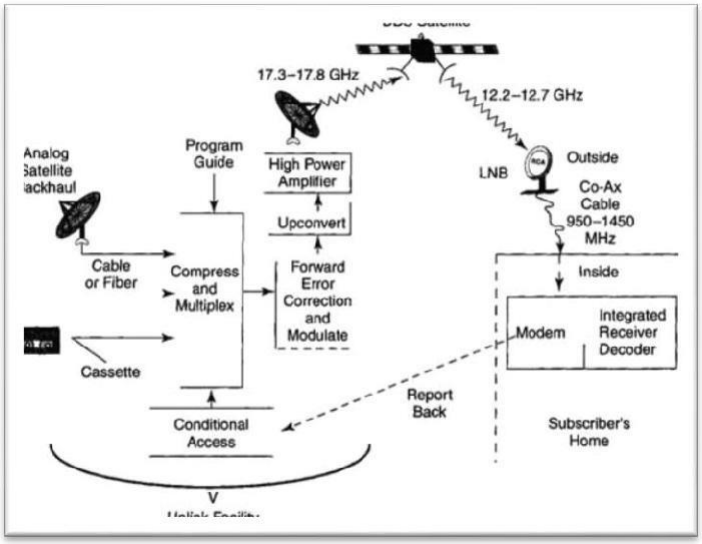

Figure 4.2-DBS Diagram

Direct communicate satellite (DBS) alludes to satellite (TV) frameworks in which the supporters, or end clients, get flag straightforwardly from geostationary satellites. Sign are communicated in computerized group at microwave frequencies.

Figure 4.3 - Direct Broadcast Satellite (SOMOY TV)

4.3 Digital Satellite Receiver

A computerized sign collector is, comprehensively, any gadget that gets advanced communicate signals. With the privilege advanced sign beneficiary, you can appreciate satellite TV, computerized link and satellite radio stations.

Figure 4.4- Digital Satellite Receiver (SOMOY TV)

Chapter5

Conclusion

5.1 Conclusion

SOMOY TV set their broadcast department in a very organize way, maintained in a strategic way & the tools for the station with every single outer interlock appeared. It bodes well to focus the acclimation of the earth station. Encoder, multiplexer & the modulator is a common thing without that we can't get the signals. It changes RF signal to IF Signal. Every tools that used there is connected to each other. Transmit through the satellite by the control circuit Broadcasting software are very expensive & machines out there too. Manually & automatically both we can do. The room of earth station is always locked & the temperature of every room is low to make the place cool, because the machines out there are always in running. Now SOMOY TV is turning into HD. So they are changing their set up & the software as well.

5.2 Bibliography

Labrador,V. (2019, march 12). *britannica.com/Satellite*. Retrieved from www.britanica.com: https://www.britannica.com/technology/satellite-communication