

College Radio Station

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ABSTRACT-The main goal of this project is to create an FM radio station for our university, where FM broadcasting is a method of radio broadcasting that uses frequency modulation. There are many universities in India, and the universities have FM radio stations. So I thought about designing a university FM radio station where students could make presentations and share important news. We have developed a 2km range FM transmitter that covers the entire university. You can change the frequency range from 78MHz to 108MHz. FM transmitter is used to play portable audio devices without Bluetooth audio connection.

Keywords- FM Transmitter, FM radio station, Frequency.

I. INTRODUCTION

College Radio is a radio program controlled by student of a college or principal teacher organ. It allows students to discover their capabilities in various fields through FM radio. Here news presented to students and staff in a college. One of substantially favourable circumstances when there are means of correspondence are important data regarding various extracurricular, co-curricular and extra-curricular programs. The operation can be communicated easily through FM radio. College radio here is mainly for radio use, especially FM, in a more logical and important sense approach to deliver meaningful news important to share. College Radio introduces new episode use radio for college because students can improve their abilities during free lessons and motivate and inspire them. College Radio stations are generally charitable and provide a system to empower people, gatherings and networks tell their own stories, share encounters and in a multimedia world, to be a media creator and advocate. It is used by students to explore their abilities in free

lessons and motivate them, Inspiring and full of energy. Around the world, college radio acts as a support network for intentional domains, general society, organizations and non-governmental organizations. Have legally qualified community radio station (as essential sector of telecommunications) in many countries, for example, France, Argentina, South Africa, Australia and Ireland. College radio has made remarkable progress in many areas 64 countries, and the terminology must be different to some extent effects in the United Kingdom, Ireland, USA, Canada and Australia, where freedom of speech from laws of speech and imperfection to various elements of reality. Radio is a service that transmits sound (sound), traditionally transmitted through the air in the form of radio waves (a form of electromagnetic radiation) from the transmitter to the antenna and thus to the receiving device. Stations may be linked in a radio network for general programming, or in distribution, simulcast, or both. Today, the stations also broadcast over FM cable, local wired network, satellite and Internet. In a radio, there are basically three different wings. These are

- (i) program team
- (ii) technical team and
- (iii) management team.

While the first two wings are responsible for managing the broadcasts of a radio station, the administrative wing provides all necessary support for the operation of the station.

II. HISTORICAL BACKGROUND

Over 350 private radio stations are operated and broadcast in India program. In this study, researchers selected six radio stations from different states. Prakashan Ltd is India's first private radio station, launched on July 3rd. At a frequency of 91.1 MHz in Bangalore in 2001. Then started with New Delhi and Lucknow in 2003, Mumbai in

2004. Later, it changed to `radiocity.in`, which provides leisure news, songs, videos and podcasts. Program and music related content. In 2010, Radio City launched its first web radio station "Radio City Fun Ka Antenna" has 18 online radio stations. With his slogan from "Rag Rag Mein Daude City", Radio City promoted the development of FM radio to deliver special and different content and awaken the listener's passion for the city. Radio City with 19 years of experience in the radio industry. He has won various awards on national and international platforms such as Golden Mike, India Radio Forum, New York Awards, ACEF Awards, etc. On February 1, 2004, Anna FM was launched as India's first campus "community" radio station by students of Anna University.

III. METHODOLOGY

The main function of the FM transmitter circuit is to transmit sound by radio waves. So, at first, an FM transmitter circuit converts the sound or audio into radio waves and then transmits it. You can see, in the block diagram of the FM transmitter, the first block is the microphone.

MICROPHONE: A microphone is a transducer that converts audio energy into an audio signal in the form of electrical energy. Therefore, the microphone is a source of the audio signal. In this block diagram, the microphone is used as the source of the audio signal, but it can also be another audio source.

AMPLIFIER: The next block is the amplifier. An amplifier is used to amplify the audio signal coming from the microphone.

MODULATOR: Next is the modulator. The modulation circuit is the main part of the FM transmitter circuit. It converts the audio signal into a radio signal that needs to be transmitted. The modulation circuit takes two signals as input, one is the audio signal from the audio amplifier and the other is the carrier signal. It adds useful information to the carrier.

OSCILLATOR: Generates alternating current at the frequency that the generator will transmit. Oscillators typically generate a sine wave, called a carrier.

ANTENNA: Antennas are more than just devices that are connected to each radio station. These are the converters that convert the voltage from the transmitter into a radio signal. And they pick up the radio signals in the air and convert them to voltage to pick them up in a receiver.

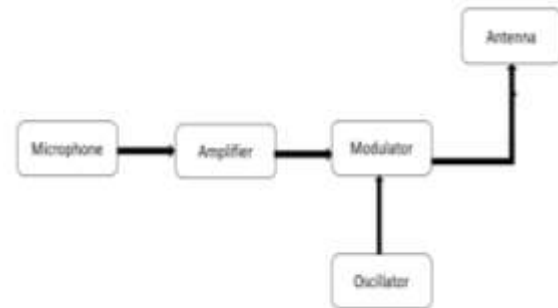


Fig. 1. Block diagram of FM Transmitter

IV. DESIGN AND IMPLEMENTATION

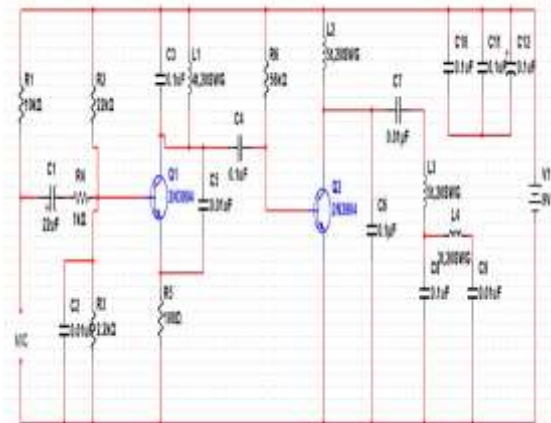


Fig. 2. Circuit Diagram of FM Transmitter

A personal FM transmitter is a low power FM radio transmitter that sends a signal from a portable audio device to a standard FM radio. Most of these transmitters connect to the device's headphone jack and then send the signal at frequencies without FM transmission. So that you can pick it up on a nearby radio. This allows portable audio devices to take advantage of the larger or better sound quality of home audio systems or car stereos without the need for a wired connection. The components required for an FM transmitter circuit are a modulator, oscillator, RF amplifier, audio preamplifier, microphone, and antenna. This figure shows a block diagram of the FM transmitter circuit. There are two types of frequencies in the signal: carrier signal (with carrier frequency) audio signal.



Fig. 3. Implementation of FM Transmitter

- **BC-548 TRANSISTORS:** Since the BC548 is an NPN transistor, the collector and emitter remain open (reverse bias) when the base pin is held to ground, and closed (forward bias) when the signal is supplied to the base pin. Become BC548 belongs to the family of NPN and PNP epitaxial silicon transistors originating from the BC108 family of metal package transistors.
- **INDUCTORS:** Inductors are used to block AC while passing DC through. The inductive design designed for this purpose is called a choke. It is also used in electronic filters to separate signals of two different frequencies and, in combination with capacitors, creates tuned circuits used to tune radio and television receivers.
- **CAPACITORS:** Variable capacitors are used to change the resonant frequency to fine tune the FM frequency band. The modulated signal from the antenna is radiated as radio waves in the VHF frequency band, and the antenna is nothing more than an 8-inch 24-gauge copper wire.
- **RESISTORS:** Resistance absorbs electrical energy and reduces the voltage to block the flow of current and release it as heat. The term "resistor" refers to a device that acts as a two-terminal passive electrical component used to limit or regulate the flow of current in an electrical circuit.
- **ELECTROLET MICROPHONE:** A device that converts sound waves into changes in electrical energy that can be amplified, transmitted, or recorded. There are two types of microphones: dynamic microphones and condenser microphones.

SIMULATION RESULTS:

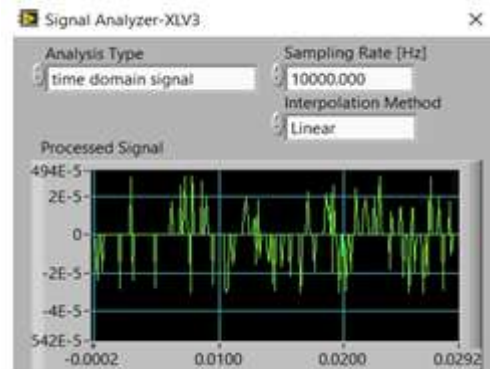


Fig. 4. INPUT SIGNAL

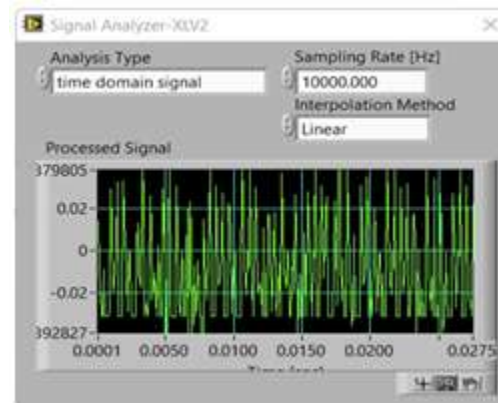


Fig. 5. OUTPUT SIGNAL

V. CONCLUSION

Campus radio has a clear social, economic, political and cultural impact on the program. The integration has made radio a more competitive medium for local advertising costs, surpassing both television and newspapers. This effort does not require government approval to set up a radio show at the university. To avoid obstacles, simply select a repeat that is not registered with any FM station in your area.

VI. FUTURE SCOPE

This study was conducted to investigate private FM radio stations with particular care. References to their content and viewer feedback. Therefore, the rest can be explored further of the town of Hindi Belt and other private radio stations that were not part of it. This study. Additional research can be done within a particular state where the sample size is large. Another area is to find out why to use code mixing or code switching. For further research. In this study, we analysed the content and language of the morning. Night and night band show, you can do more

research in the morning, Afternoon band show and weekend show.

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