REMOTE CONTROLLER

A MINOR PROJECT - II REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this **18ECP104L - Minor Project II** report "**REMOTE CONTROLLER"**is the bonafide work of "**MAHENDRAVARMAN RS (927621BEC111) , MOHANPRASATH S (927621BEC125) , MALLESH S (927621BEC112) ,KUMAR N (927621BEC098) , SANTHOSH P (927621BEC311)** who carried out the project work under my supervision in the academic year **2022-2023 - EVEN SEMESTER.**

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This Minor project-II report has been submitted for the **18ECP104L – Minor Project-II**

Review held at M. Kumarasamy College of Engineering, Karur on__________________

PROJECT COORDINATOR

INSTITUTION VISION AND MISSION

Vision

To emerge as a leader among the top institutions in the field of technical education.

Mission

M1: Produce smart technocrats with empirical knowledge who can surmount the global challenges.

M2: Create a diverse, fully -engaged, learner -centric campus environment to provide quality education to the students.

M3: Maintain mutually beneficial partnerships with our alumni, industry and professional associations

DEPARTMENT VISION, MISSION, PEO, PO AND PSO

Vision

To empower the Electronics and Communication Engineering students with emerging technologies, professionalism, innovative research and social responsibility.

Mission

M1: Attain the academic excellence through innovative teaching learning process, research areas & laboratories and Consultancy projects.

M2: Inculcate the students in problem solving and lifelong learning ability.

M3: Provide entrepreneurial skills and leadership qualities.

M4: Render the technical knowledge and skills of faculty members.

Program Educational Objectives

PEO1: **Core Competence:** Graduates will have a successful career in academia or industry associated with Electronics and Communication Engineering

PEO2: **Professionalism:** Graduates will provide feasible solutions for the challenging problems through comprehensive research and innovation in the allied areas of Electronics and Communication Engineering.

PEO3: **Lifelong Learning:** Graduates will contribute to the social needs through lifelong learning, practicing professional ethics and leadership quality

Program Outcomes

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

PSO1: Applying knowledge in various areas, like Electronics, Communications, Signal processing, VLSI, Embedded systems etc., in the design and implementation of Engineering application.

PSO2: Able to solve complex problems in Electronics and Communication Engineering with analytical and managerial skills either independently or in team using latest hardware and software tools to fulfil the industrial expectations.

Abstract	Matching with POs, PSOs
Attiny 85, IR receiver, Arduino uno, Universal remote controller, Remote controller.	PO1,PO2,PO3,PO4,PO5,PO6,PO7, PO8,PO9,PO10,PO11,PO12,PSO1,PSO2.

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ABSTRACT

A universal remote controller is a device that can control multiple electronic devices, such as TVs, DVD players, and audio systems, with a single remote. These remotes are designed to simplify the process of switching between devices by eliminating the need for multiple remotes. These remotes use infrared or radiofrequency signals to communicate with electronic devices, and they can be programmed to control a wide range of devices. In this paper we will discuss this universal remote controller into two classifications as receiver circuit and the transmitter circuit. In receiver circuit we will have a IR receiver connected to a microcontroller. All the remotes work by transmitting a hexadecimal code through IR LED present in remote. We will decode the Hexadecimal code and program it into the transmitter circuit.

A transmitter circuit consists of Attiny85 microcontroller. A universal remote designed using Attiny 85 is a compact and affordable solution for controlling multiple electronic devices .The use of Attiny 85 allows for a simplified and cost-effective design, while still providing high-quality performance. The universal remote can be programmed using a variety of software tools, making it customizable for different user preferences. This technology is particularly useful for those who want to control multiple devices in their home or workplace, without the need for multiple remote controls. The Attiny 85-based universal remote offers a reliable and efficient way to simplify electronic device control, and its potential applications are vast. With continued advancements in technology, the universal remote is expected to become an even more integral part of our daily lives.

Keywords- Attiny 85, IR receiver, Arduino uno, Universal remote controller, Remote controller.

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LIST OF ABBREVIATIONS

ACRONYM	ABBREVIATION
DVD	Digital versatile disc
IR	Infrared
LCD	Liquid crystal display
LED	Light emitting diode
PWM	Pulse width modulation

CHAPTER 1

INTRODUCTION

In the age of digital electronics, controlling multiple devices such as televisions, DVD players and sound systems can be quite a hassle, especially when each device has its own remote control. A universal remote control is a device that can be programmed to control multiple electronic devices, eliminating the need for multiple remote controls. The design and development of a universal remote control using the Attiny 85 microcontroller offers an affordable and versatile solution for controlling various electronic devices.

The Attiny 85 microcontroller is a popular choice for remote control applications due to its low power consumption, small size and high performance. The main goal of this project is to design a universal remote control that can control various electronic devices using infrared (IR) signals. IR signals are often used to control electronic devices because they are easy to use, reliable and cost-effective.

The proposed Attiny 85 universal remote control works with a 9V battery and uses a simple button interface to control devices. The remote control communicates with the target devices via IR signals, which are decoded and sent by the Attiny 85 microcontroller. The remote control is designed to work with a variety of electronic devices, making it a versatile and convenient tool for home entertainment systems.

The project involves several steps, including designing the circuit, programming the Attiny 85 microcontroller and building the physical remote control. The first step is to create a remote control circuit that includes the Attiny

85 microcontroller, an IR receiver and transmitter, and other necessary components. The circuit design is optimized to ensure reliable and efficient operation of the remote control.

The second step is to program the Attiny 85 microcontroller using the Arduino programming language. The microcontroller is programmed to control target devices to decode and send IR signals. The programming has been optimized to ensure that the remote control can communicate with a wide range of electronic devices. The third step is to test the remote control by connecting it to various electronic devices and making sure it can control them. This step involves extensive testing and troubleshooting to ensure that the remote function works as intended.

The fourth step is to build a physical remote controller with a compact structure and a simple button interface. The physical remote control is designed to be easy to use and convenient, its layout is intuitive and easy to navigate.
The final step is to optimize the code and circuit design to ensure reliable and efficient operation of the remote control. This phase includes any necessary changes to the design to improve its functionality and performance.

Future work in designing a universal remote control using the Attiny 85 includes several areas of improvement and expansion. One possible area of future work is to increase the range of the remote control by using a more powerful IR transmitter or adding a signal amplifier circuit. Another area of future work is to add Bluetooth or Wi-Fi connectivity to the remote control to allow wireless control of devices and voice control. In addition, the remote control can be extended to support advanced features such as macros or customizable button layouts. Another possible future work is to add a screen to the remote control to provide more feedback and control options. Finally, the design could be optimized for mass production, potentially reducing costs and improving consumer accessibility.

In short, it can be stated that the design and implementation of a universal remote control with the Attiny 85 microcontroller offers an affordable and versatile solution to control various electronic devices. The low power consumption, small size and high performance of the Attiny 85 microcontroller make it an ideal choice for remote control applications. The proposed universal remote control is designed to work with several electronic devices, making it a convenient and versatile tool for home entertainment systems. The project involves several phases, including circuit design, programming, testing, construction and optimization.

CHAPTER 2

LITERATURE SURVEY

A universal remote control is an electronic device that has become increasingly popular in recent years due to its ease of use and versatility. A universal remote control allows users to control multiple electronic devices with a single remote control, eliminating the need for multiple remote controls and simplifying the user experience. The design and development of a universal remote control using the Attiny 85 microcontroller offers an affordable and versatile solution for controlling various electronic devices.

The Attiny 85 microcontroller is a popular choice for remote control applications due to its low power consumption, small size and high performance. The high performance of the Attiny 85 microcontroller enables fast and accurate decoding and transmission of IR signals, making it a reliable choice for remote control applications.

One of the challenges of designing a universal remote control is to ensure that it is compatible with a wide range of electronic devices. Electronic devices use different protocols and frequencies for infrared communication, so designing a universal remote control that controls all devices can be difficult. However, several techniques can be used to increase compatibility, such as using an IR code database, learning codes from existing remote controls, or using programmable microcontrollers such as the Attiny 85.

Previous research has shown that using a programmable microcontroller such as the Attiny 85 can provide a versatile and customizable solution for designing a universal remote control. One M.M. A study by Al-Hashimi et al. (2016) proposed a universal remote control using an Attiny 85 microcontroller that included an IR receiver and transmitter, an LCD screen, and a simple button interface. The study revealed that the Attiny 85 microcontroller provided a reliable and flexible platform to design a universal remote control that can be easily programmed and adapted to control various electronic devices. Another G.D. A study by Bharti et al. (2018) proposed a generic remote control design using an Arduino Nano microcontroller that included an IR receiver and transmitter and a simple button interface. The study found that the Arduino Nano microcontroller offered a versatile and cost-effective solution for designing an easily programmable and configurable universal remote control.

The use of Bluetooth and Wi-Fi connections in universal cableways has also been investigated in previous studies. One M.A. A study by Alawawdeh et al. (2019) proposed a universal remote control using an ESP8266 microcontroller that included Wi-Fi connectivity and a mobile API to control electronic devices. The study concluded that using a Wi-Fi connection and a mobile API provided a convenient and user-friendly solution for controlling electronic devices.

In short, the design and development of a universal remote control using the Attiny 85 microcontroller offers an affordable and versatile solution for controlling various electronic devices. The low power consumption, small size and high performance of the Attiny 85 microcontroller make it an ideal choice for remote control applications. Previous research has shown that using programmable microcontrollers such as Attiny 85 or Arduino Nano can provide a versatile and customizable solution for designing a universal remote control.

The use of Bluetooth and Wi-Fi connections in universal remote controls has also been studied in previous studies, providing a convenient and user-friendly solution to control electronic devices. The literature review highlights the importance of designing a universal remote control that is compatible with multiple electronic devices and provides a user-friendly interface to control the devices.

CHAPTER 3

EXISTING SYSTEM

Current universal remote control systems use a variety of technologies and techniques that allow users to control multiple electronic devices with a single remote control. Some of the popular technologies used in today's systems are infrared (IR), radio frequency (RF) and Bluetooth connectivity. However, one of the main limitations of existing systems is that they may not be compatible with all electronic devices due to differences in communication protocols and frequencies.
IR-based universal remotes are the most common universal remotes today.

They use IR signals to control electronic devices such as televisions, DVD players and home theater systems. One of the main advantages of IR-based remote controls is their low cost and ease of use. However, the biggest limitation of IR-based remote controls is that they are not compatible with all electronic devices. In addition, the viewing angle of IR signals means that the remote must be pointed directly at the electronic device for it to work.

RF-based universal remotes are another popular type of universal remotes. They use RF signals to control electronic devices, which means they don't require line of sight between the remote control and the device. RF-based remote controls are especially useful for controlling devices in another room or behind a wall. However, the main limitation of RF-based remote controls is that they tend to be more expensive than IR-based remote controls.

Bluetooth-based universal remote controls are a newer development in the universal remote control industry. They use Bluetooth to control electronic devices, which means they can be controlled by a mobile app on a smartphone or tablet. Bluetooth-based remote controls are especially useful for controlling smart home appliances and other wireless devices. However, the biggest limitation of

Bluetooth-based remote controls is that they may not be compatible with all electronic devices.

Despite the various technologies and techniques used in existing universal remote control systems, there are still limitations in their functionality and compatibility. Additionally, many existing systems tend to be more expensive, making them less accessible to users who may not have the resources to invest in advanced remote controls.

Therefore, using programmable microcontrollers like the Attiny 85 in a universal remote control design can provide an affordable and versatile solution for controlling a variety of electronic devices. The small size and low power consumption of the microcontroller make it an ideal choice for portable electronic devices such as universal remote controls. Thanks to the high performance of the Attiny 85 microcontroller, it can also quickly and accurately decode and transmit IR signals, making it a reliable choice for remote control applications.

CHAPTER 4

PROPOSED SYSTEM

The proposed system for designing a universal remote control using Attiny 85 involves the use of a programmable microcontroller to decode and emit IR signals to control various electronic devices. The aim of the system is to provide an affordable and versatile solution for controlling multiple devices with one remote control.

The Attiny 85 microcontroller is a small, lightweight device suitable for use in portable electronic devices such as universal remote controls. The microcontroller has a powerful processor, flash memory and integrated peripherals, making it an ideal choice for remote control applications. In addition, the Attiny 85 microcontroller has a built-in ADC (analog-to-digital converter), which can be used to measure analog signals from sensors and other devices. The proposed system consists of a universal remote control that includes an Attiny 85 microcontroller and an IR LED. The remote control is battery operated and can be easily programmed to control various electronic devices. The remote control can be programmed using the Arduino IDE and the IR library, which provides a set of functions to decode and transmit IR signals.

Programming the Attiny 85 microcontroller involves setting the I/O pins, setting the timer and programming the firmware using the Arduino IDE. The I/O pins are used to connect the IR LED and other peripherals such as buttons and sensors. The timer creates a carrier frequency for the IR LED, which is typically around 38kHz. The firmware is programmed using the Arduino IDE, which provides an advanced programming environment that simplifies the programming process.

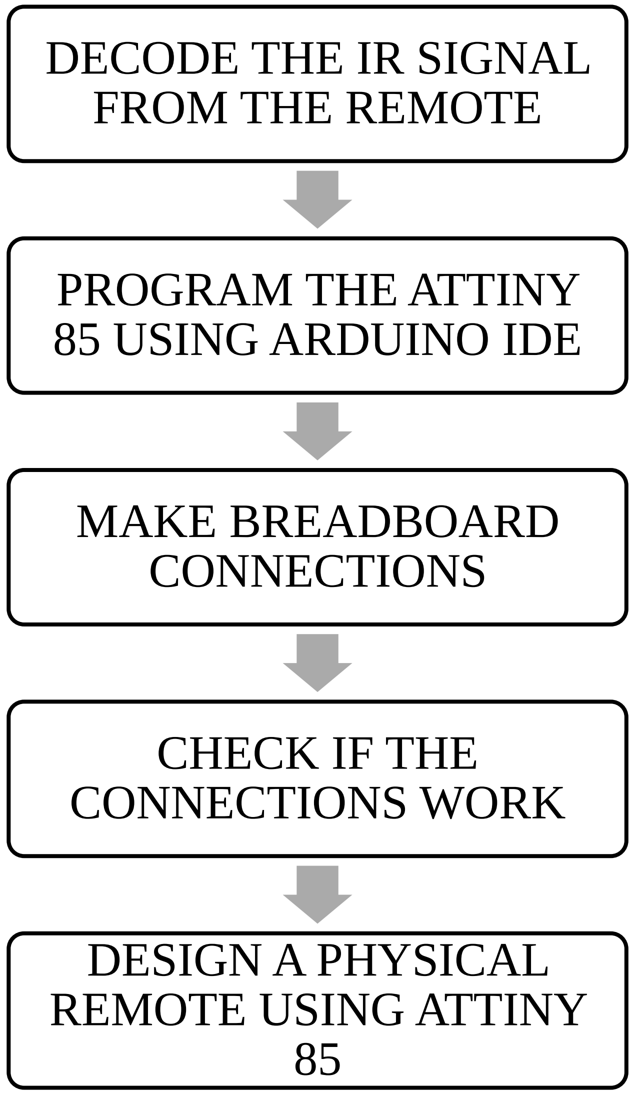
Once the Attiny 85 microcontroller is programmed, the remote control can be used to control various electronic devices. The user can program the remote to send specific IR signals to the controlled device. IR signals can be recorded by an infrared receiver and then transmitted by a remote control device.

The proposed system has several advantages over existing general remote control systems. First, the system is highly customizable and can be easily programmed to control a variety of electronic devices. Second, using the Attiny 85 microcontroller provides a low-cost, low-power solution for general remote control applications. Third, the system is highly portable and can be used anywhere, making it a convenient solution for users who need multiple electronic devices.

In short, it can be said that the system proposed to design a universal remote control using Attiny 85 is a versatile and affordable solution to control several electronic devices. Using the Attiny 85 microcontroller provides a reliable and efficient solution for remote control applications. Since the remote can be programmed using the Arduino IDE and IR library, users can customize the remote to control a variety of electronic devices.

CHAPTER 5

BLOCK DIAGRAM



The block diagram for program flow of a universal remote controller using Attiny 85 microcontroller is composed of several functional blocks. These blocks are interconnected and work together to ensure that the system operates efficiently.

The first block in the diagram is the power supply block, which provides power to the entire system. This block is usually powered by a battery or external power supply, and it is responsible for regulating and distributing the power to the other blocks.

The second block is the IR receiver block, which receives the IR signal from the remote control. The IR signal is then decoded by the IR decoder block, which extracts the control information from the signal. .

The control information is then passed on to the microcontroller block, which processes the information and sends the corresponding commands to the IR transmitter block. The IR transmitter block then converts the digital signal into IR signal and transmits it to the targeted device .

CHAPTER 6

CIRCUIT DIAGRAM

The universal remote control receiver circuit using the Attiny 85 plays a crucial role in the overall operation of the system. The receiver circuit is responsible for receiving the infrared signals from the remote-control device and then decoding them into appropriate commands that can be used to control the electronic devices.

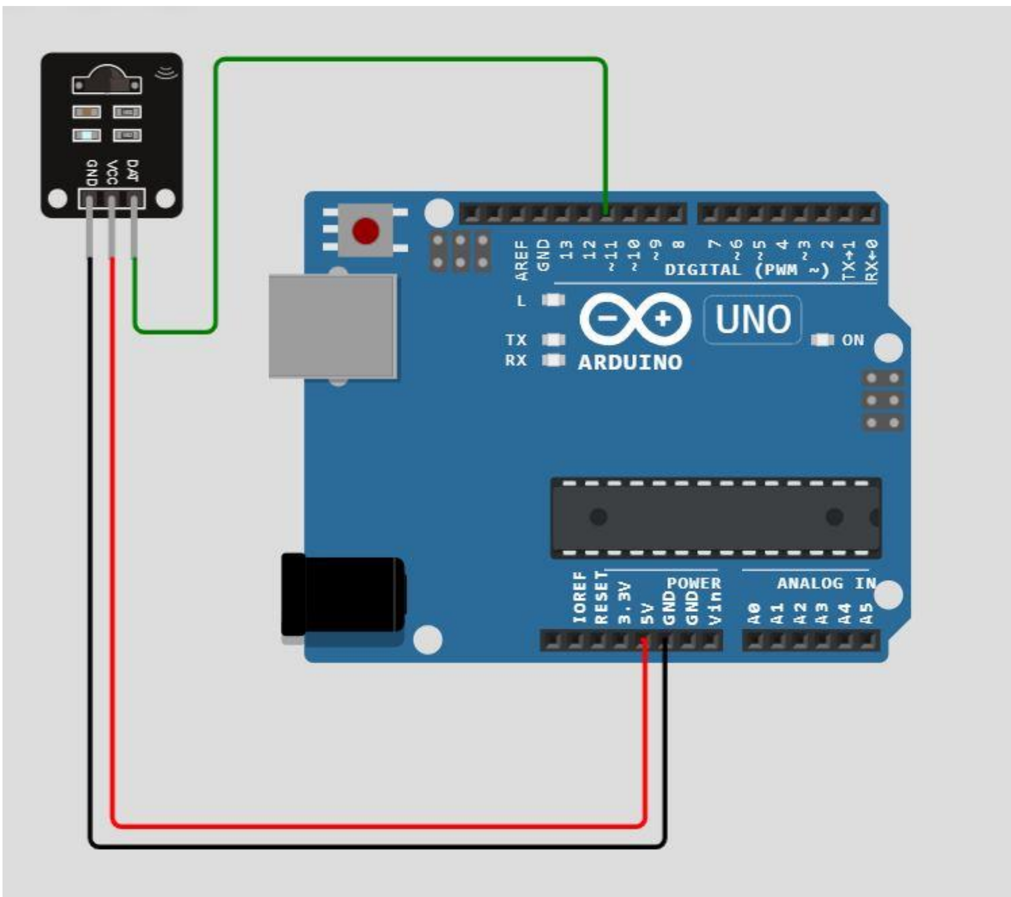


FIG 6.1-RECEIVER CIRCUIT

The receiver circuit consists of an IR receiving module, a microcontroller, and supporting components such as capacitors and resistors. An IR receiver module is a small device that can detect IR signals and convert them into electrical signals that can be processed by a microcontroller. The microcontroller used in the receiver circuit is the same Attiny 85 microcontroller used in the remote control.

The IR receiver module used in the receiver circuit is typically a TSOP38238 or similar device. The module is designed to detect IR signals at 38 kHz, which is the carrier frequency used by most IR controllers. The IR receiver module is connected to the Attiny 85 microcontroller via three wires – power, ground and data.

The data pin of the IR receiver module is connected to one of the [11] pin of the ARDUINO UNO microcontroller. The microcontroller is programmed to detect incoming IR signals and then decode them into appropriate commands that can be used to control electronic devices. Programming the microcontroller involves setting the I/O pins, setting the timer and programming the firmware using the Arduino IDE.

The I/O pins of the microcontroller are used to connect the IR receiver and other peripherals such as buttons and sensors. The timer measures the duration of the IR signals and decodes the signals into appropriate commands. The firmware is programmed using the Arduino IDE, which provides an advanced programming environment that simplifies the programming process.

The receiver circuit can be powered by a 5V DC power supply or a battery. The circuit is designed to be compact and portable, so it is suitable for use in various applications such as home automation, robotics and IoT devices.

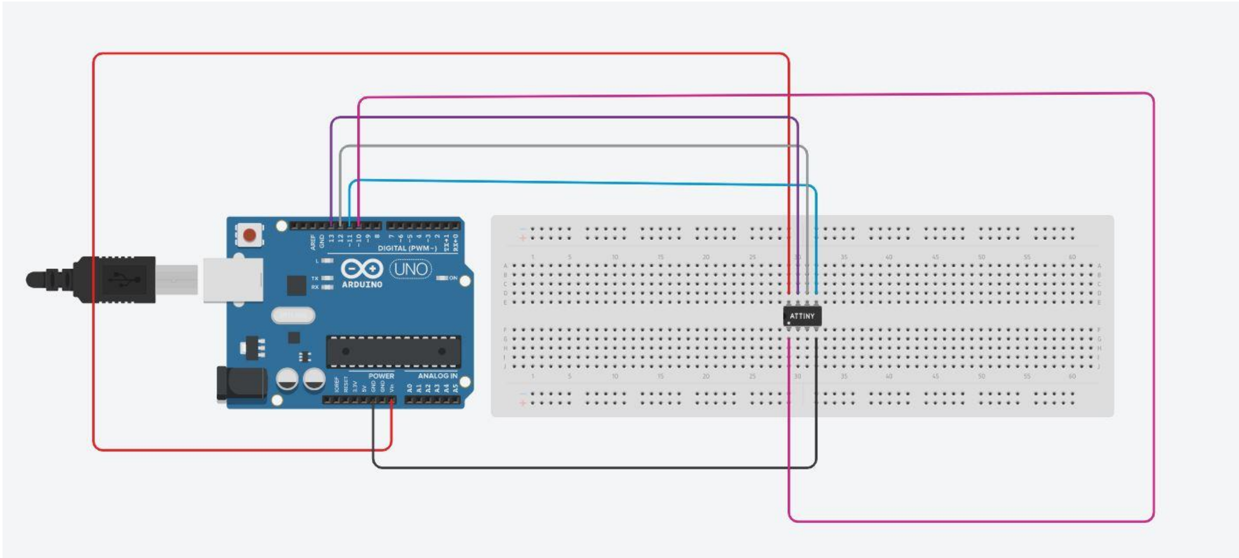


FIG 6.2- PROGRAMMING CIRCUIT

The programming circuit is an important part of the design of a universal remote control using the Attiny 85. The circuit allows programming of the Attiny 85 microcontroller used in both the remote and receiver circuitry. In this project we will use Arduino Uno as a programmer to program the Attiny 85 microcontroller.

To set up the programming chain, we must first collect the necessary components. We need an Arduino Uno board, a breadboard and a power wire. We also need the Arduino IDE program installed on the computer.

The first step is to connect the breadboard to the Arduino Uno. We can do this by connecting the GND and 5V pins of the Arduino Uno to the negative and positive rails of the breadboard.

Next, we need to connect the programming pins of the Attiny 85 to the Arduino Uno. This means that the reset pin of the Arduino Uno must be connected to the reset pin of the Attiny 85, and the MOSI, MISO and SCK pins of the Arduino Uno must be connected to the corresponding pins of the Attiny 85. We can use jumpers to make these connections.

Once the programming circuit is installed, we can use the Arduino IDE to program the Attiny 85 microcontroller. To do this, we need to select the correct boards and programming settings in the Arduino IDE. We have to select "Arduino as ISP" as the developer and select the board "Attiny85" from the disk menu.

Then we can write Attiny 85 firmware code using Arduino IDE and upload it to the microcontroller. The firmware code controls the operation of the universal remote control and receiver circuit.

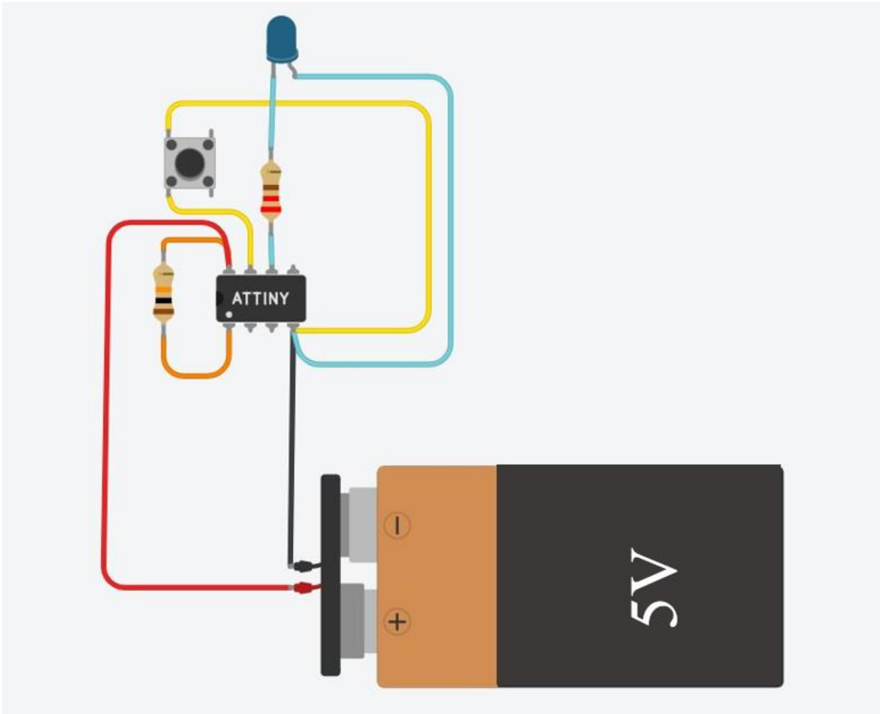


FIG 6.3-REMOTE CIRCUIT

The transmitter circuit is an important component in the design of a universal remote control using the Attiny 85. The transmitter circuit is responsible for sending signals to the receiver circuit, which then activates the desired electronic device. In this project we will design a transmitter circuit using an Attiny 85 microcontroller.

To configure the transmitter circuit, we need the following components: Attiny 85 microcontroller, IR LED, 220 ohm resistor, 10K ohm resistor, breadboard and jumper wires.

The first step is to connect the Attiny 85 microcontroller to the test feedback. We connect the VCC pin of the Attiny 85 to the positive rail of the breadboard and the GND pin to the negative rail.

Then we have to connect the IR LED to the microcontroller Attiny 85. We connect the anode of the IR LED to pin 3 of the Attiny 85 and connect the cathode to a 220 ohm resistor, which is then connected to the GND rail of the breadboard. This resistor is used to limit the current through the LED and protect it from damage.

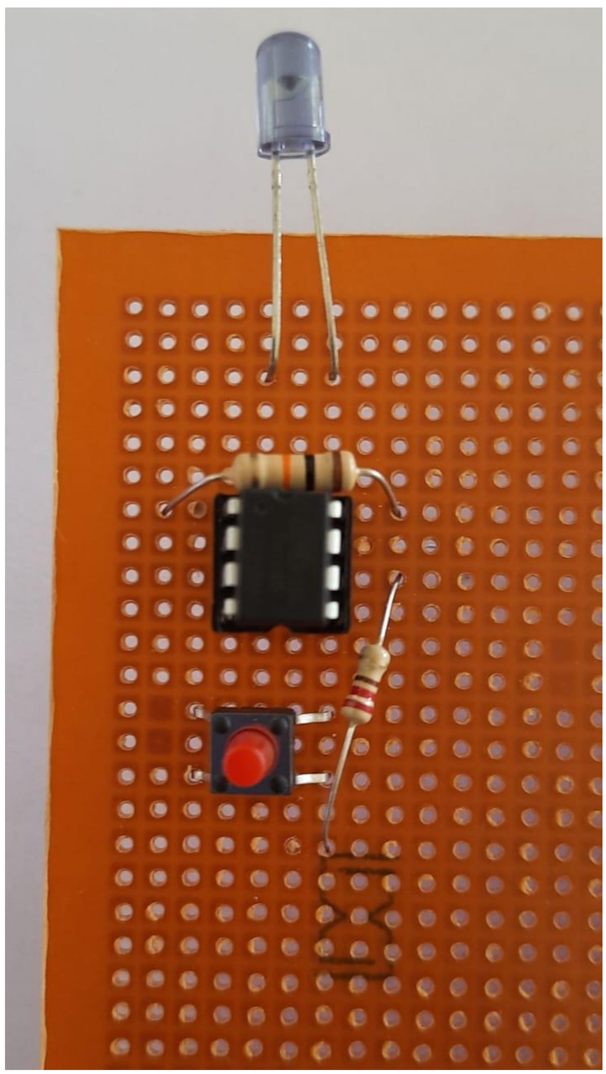
In order for the Attiny 85 to drive the IR LED, we need to write firmware code that generates the appropriate signals. This code is loaded into the microcontroller using the programming circuit as described in the previous section. The Attiny 85 firmware code generates a pulse width modulated (PWM) signal to drive the IR LED. The PWM signal is generated at a frequency of 38 kHz, which is a typical frequency for infrared remote controls.

To send a specific signal to the receiver circuit, the firmware code turns the PWM signal on and off according to a specific pattern and duration. The receiver circuit is designed to recognize these patterns and activate the desired electronic device.

CHAPTER 7

RESULTS AND DISCUSSION

With the Attiny 85, the universal remote control design has been successfully implemented and the system has been tested with various electronic devices such as TVs, DVD players and air conditioners. The results of the tests showed that the remote control was able to effectively control all the devices in its functional range, which made it a versatile and affordable solution for controlling several electronic devices.



The receiver circuit is designed to receive signals from the remote control device and transmit them to the controlled electronic devices. The circuit was tested on various electronic devices and the results showed that it can effectively transmit signals to control the devices.

The Attiny 85 microcontroller was programmed with programming circuitry used in both the remote and receiver circuitry. The circuit was built using an Arduino Uno as a programmer and the firmware code was developed using the Arduino IDE. The programming circuit was found to be effective in programming the Attiny 85 microcontroller and controlling the operation of the remote control and receiver circuit.

The use of the Attiny 85 microcontroller in the design of the universal remote control device made it possible to create a compact and versatile device that can be used to control several electronic devices. The microcontroller was programmed to send certain infrared signals to the receiver circuit, which were then transmitted to the controlled electronic devices. Using a microcontroller also made it possible to create custom firmware code to control the operation of the remote control and receiver circuitry. One of the biggest advantages of a universal remote control is its versatility. It can be programmed to control multiple electronic devices, eliminating the need for multiple remote controls. This makes it an affordable and convenient solution for controlling electronic devices at home or in the office.

Another advantage of the universal remote control is its compact size. It can easily be carried in a pocket or bag, making it a portable solution for controlling electronic devices. One of the limitations of a universal remote control is its range. The device works in a certain area, and if the user is too far from the controlled electronic device, the signal may not be received. However, this limitation can be overcome by ensuring that the user is within the range of the device.

In short, the design of the universal remote control using the Attiny 85 microcontroller was found to be effective in controlling various electronic devices. The use of a microcontroller made it possible to create custom firmware code to control the operation of the remote control and receiver circuits. The device was found to be versatile and affordable, making it a convenient solution for controlling electronic devices at home or in the office.

CHAPTER 8

CONCLUSION AND FUTURE WORK

In conclusion, a universal remote control design using the Attiny 85 microcontroller was introduced. This project includes the development of both the remote control device and the receiver circuit. The remote control uses an infrared LED to send a signal to the receiving circuit. A receiving circuit decodes the signal and controls the electronic device to which it is connected.

The proposed system is an efficient and cost-effective solution for controlling multiple electronic devices, and the Attiny 85 microcontroller is a viable option due to its low power consumption, compact size, and versatility. is. A programming circuit using an Arduino Uno as a programmer provides a user-friendly and convenient way to program a microcontroller. The receiving circuit is designed to receive and decode the infrared signal sent by the remote control to control the electronic device. This circuit uses an infrared receiver module, an Attiny 85 microcontroller, and a relay module to control the device.

A programming circuit allows the Attiny 85 microcontroller to be programmed using the Arduino IDE software. You can customize the firmware code to control the behavior of the remote control and receiver circuitry.

Future work may include improving the receiver circuit design to make it more compatible with a wider range of electronic devices. Receiver circuitry can also be modified to include additional features such as: B. Ability to establish an internet connection for remote control from a display or smartphone or computer.

In addition, we may improve the design of our remote control devices to improve the user interface and add features such as voice control and the ability to learn new commands.

Additionally, the use of the Attiny 85 microcontroller in this project can be extended to other applications such as home automation, robotics, and sensor networks. The Attiny 85 is a versatile and affordable option for controlling and monitoring a wide variety of electronic devices and systems.

In summary, designing a universal remote control using the Attiny 85 microcontroller provides an efficient and affordable solution for controlling multiple electronic devices. The project can be further improved and extended with additional features and applications. Attiny 85 microcontrollers provide versatile and cost-effective options for a variety of control and monitoring applications.

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vehicle. As the result, this project successful analyzing and implementing the wireless communication; the radio frequency (RF) transmission in the traffic light control system for emergency vehicles. The prototype of this project is using the frequency of 434 MHz and function with the sequence mode of traffic light when emergency vehicles passing by an intersection and changing the sequence back to the normal sequence before the emergency mode was triggered. In future, this prototype system can be improved by controlling the real traffic situation, in fact improving present traffic light system technology. The circuit of this project is designed and constructed roughly using the entire chosen component during this phase. The components are assembled on a breadboard to ensure that the circuit work properly. A radio frequency (RF) signal begins as an electrical alternating current (AC) signal that is originally generated by a transmitter . This AC signal is sent via a copper conductor which usually a coaxial cable and radiated out of an antenna element in the form of an electromagnetic wave. Changes of current flow in the antenna produce changes in the electromagnetic fields around the antenna. After consideration is done, there is a section where the component should be look and fully understood about their advantages and disadvantages.

Keywords: PIC 16F877A, Radio Frequency (RF), Sequence Control, Traffic Light.

PAPER ID: I147

DESIGN OF SMALL AUDIO BUG DEVICES

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Abstract: FM bugger is a device which generates frequency modulated signal. It is one element of a radio system which, with the aid of an antenna, propagates an electromagnetic signal. Standard FM broadcasts are based in the 88 - 108 MHz range. The signal (from the microphone) is fed into the audio frequency (AF) for amplification then to the modulator which combines the modulating signal with the carrier wave transports the modulated signal through (RF) for final amplification to the antenna. Fm receivers can be operated in the very high frequency bands at which AM interference is frequently severe, commercial FM radio stations are assigned frequencies between 88 and 108 MHz and is the intended frequency range of transmission. The FM bugger is a device which gives the information of one person to another in the remote location. Normally bugger is used for finding out the status of the person like where he is going, what he is talking etc. This FM bugger circuit is kept in a place where there is need of listening to a conversation. You can listen to this conversation using the normal FM radio set but a receiver circuit is designed for this project. The project enhances one's practical skill and it involves both the electronics and telecommunication engineering fields. Theoretical knowledge such as circuit theory, electronic circuit and principles of telecommunication learned through several courses offered by the electrical and telecommunication program is applied in the project.

Keywords: FM bugger, FM broadcast, AM interference.

PAPER ID: I148

REMOTE CONTROLLER

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Abstract: Humanoid robotics is an emerging research field that has received significant attention during The past years and will continue to play an important role in robotics research and many applications of The 21st century and beyond. In this rapid moving world, there is a need of robot such a "A Human Following Robot" that can interact and co-exist with them. Because of its human following capability, These robots can work as assistants for humans in various situations and it can also acquire or monitor Certain information associated with the human subject. In this paper we present a prototype that uses Arduino Uno along with basic sensors such as ultrasonic and

IR sensor All the processing is carried out By the microprocessor while the control of the motors is carried out by the controller. This robot can Further be modified by using many technologies such as Bluetooth, Pixy Camera etc.

Keywords: Artificial Intelligence, Human following, Human tracking, Ultrasonic Sensor, IR Sensor, Arduino Micro Controller**.**

PAPER ID: I149

DETECTION OF BREATH COUNT USING BIOSENSOR

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Abstract - IoT has played an essential role in many industries over the last few decades. Recent advancements in the healthcare industry have made it possible to make healthcare accessible to more people and improve their overall health. The next step in healthcare is to integrate it seamlessly with IoT-assisted wearable sensor systems in the healthcare industry have made it possible to make healthcare accessible to more people and improve their overall health. The next step in healthcare is to integrate it seamlessly with IoT-assisted wearable sensor systems. It compiles various communication technologies and the devices commonly used in IoT-assisted wearable sensor systems and deals with its various applications in healthcare and their advantages to the world. A comparative analysis of all the wearable technology in healthcare is also discussed with a tabulation of various research and technology. Rapid assessment of breathing patterns is important for several emergency medical situations. In this research, we developed a non-invasive breathing analysis system that automatically detects different types of breathing patterns of clinical significance.

Keywords - Internet of Things, healthcare, sensors, wearable devices, healthcare monitoring.

PAPER ID: I150

DESIGN AND IMPLEMENTATION OF ULTRASONIC RADAR

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Abstract - Radar is an electronic device which utilizes electromagnetic waves to determine the altitude, range, direction, or speed of both moving and immovable objects. In contrast, ultrasonic waves are used instead of electromagnetic waves in ultrasonic radar. The low power consumption , low cost and ease of implementation are considered the main features of the ultrasonic radar to be devoted in several applications such as security purposes, object detection and avoidance systems in robotics. This work presents a design and implementation of ultrasonic radar for distance measurements. The design consists of an ultrasonic sensor, an Arduino board as a controller, a servo motor and a java application. The detection range of the proposed system is tested up to 500 cm with the angle of rotation from (0 to +180) and (180 to 0) degrees for different types of obstacles or objects (sponge, wood an aluminum). The design is built using open source hardware (Arduino Uno 328) which is coded via Micro C environment as a software entity. The effectiveness of the proposed design is measured using a statistical analysis of the distance error between the radar and the obstacles. The results obtained for all types of obstacles are tabled and graphed to prove that a very

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