

Anti Piracy Screening System

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Abstract- Cinema is a major entertainment for people in today's life. To entertain people a lot of investment is put on cinemas by the film-makers. Their effort is being ruined by few people by pirating the cinema content. They do it by capturing the video in mobile camera and upload it to websites or sell it to people and this goes on. Our Project a technical method to prevent video recording in movie theatres is proposed. An invisible light is projected from the screen to the whole audience that falls on the cameras. The camera are optically sensitive to infra-red light in turn disturbing the acquisition functions of any camera making an illegal recording in the theatre useless.

Index terms- IR LED, Anti-Piracy, Camera

I. INTRODUCTION

In today's age the growth of the Internet has lead to many new innovations in the way it is used. Internet can provide fast access to any kind of information and media and also the copyrighted contents.

"Piracy refers to the unauthorized duplication of copyrighted content that is then sold at substantially lower prices in the 'black' market".

Final copy of the movie content might get leaked before its release by the multiple teams working on them.

The more common method is to film the movie inside a theatre and then uploading it on Websites or convert them to DVDs and sell them on the streets. Most box office releases are available online within a few days or even hours of the box office release.

Hindering piracy has always been priority number one for movie theaters. The markets around the world have tried to take on the issue of piracy through policing and prosecution.

Copyright law protects the value of creative work. Making unauthorized copies may subject one to civil and criminal liability.

Night vision goggles are provided to movie hall staffs which would help them to notice any audience trying to record a movie while screening.

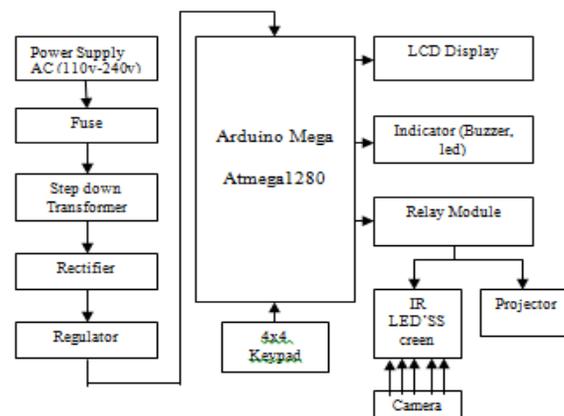
Instead of treating every movie grow as a potential pirate; an anti-piracy screening system can be implemented in order to make the pirate copy useless as well as having no effect on the audience.

II. PROPOSED SYSTEM

This paper describes a system where in IR signals are transmitted towards movie audiences in the theaters which will wash out any silicon-CCD (charge coupled devices)-based digital camcorders, which makes the recorded video content unfit for illegal marketing.

In this mechanism the projector and Anti-Piracy Screening System is run parallelly. In case the Anti-Piracy Screening System is not able to ON or short circuit then, the program will help to indicated using the buzzer and LED.

BLOCK DIAGRAM:



III. DESCRIPTION

The components mentioned in the block diagram is explained below:

a. Fuse



A fuse is an electrical safety device that operates to overcurrent protection of an electrical circuit. Its essential component is a metal wire or strip that melts when too much current flows through it, thereby interrupting the current. It is sacrificial device. Once a fuse has operated it is an open circuit, and it must be replaced or rewired, depending on type. Here we are using 250V fuse that will interrupt a 5A current after 100sec

b. Transformer (step down)



A step down transformer is one whose secondary voltage is less than its primary voltage. It is designed to reduce the voltage from the primary winding to the secondary winding. This kind of transformer “steps down” the voltage applied to it. As a step-down unit, the transformer converts high-voltage, low-current power into low-voltage, high-current power. The larger-gauge wire used in the secondary winding is necessary due to the increase in current. The primary winding, which doesn’t have to conduct as much current, may be made of smaller-gauge wire.

c. Rectifier



A rectifier is an electrical device composed of one or more diodes that converts alternating current (AC) to

direct current (DC). A diode is like a one-way valve that allows an electrical current to flow in only one direction. This process is called rectification. A rectifier can take the shape of several different physical forms such as solid-state diodes, vacuum tube diodes, mercury arc valves, silicon-controlled rectifiers and various other silicon-based semiconductor switches.

d. Regulator



A voltage regulator is a system designed to automatically maintain a constant voltage level. A voltage regulator may use a simple feed-forward design or may include negative feedback. It may use an electromechanical mechanism, or electronic components. Depending on the design, it may be used to regulate one or more AC or DC voltages. Electronic voltage regulators are found in devices such as computer power supplies where they stabilize the DC voltages used by the processor and other elements. Here we using 7805 and 7812 IC's

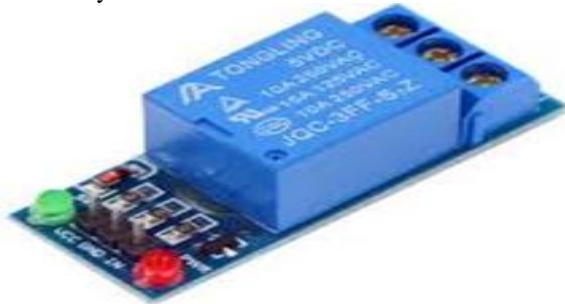
e. Atmega1280



The Arduino Mega is a microcontroller board based on the ATmega1280. It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega is compatible with most shields designed for the Arduino Duemilanove or Diecimila. Flash Memory 128 KB of which 4 KB used by

bootloader, SRAM8 KB, EEPROM4 KB, Clock Speed16 MHz

f. Relay module



Relays are electromechanical devices that use an electromagnet to operate a pair of movable contacts from an open position to a closed position. The advantage of relays is that it takes a relatively small amount of power to operate the relay coil, but the relay itself can be used to control motors, heaters, lamps or AC circuits which themselves can draw a lot more electrical power. The main operation of a relay comes in places where only a low-power signal can be used to control a circuit. It is also used in places where only one signal can be used to control a lot of circuits.

g. Indicator



LED light panels and other indicator lights give a visual indication of system status at a glance. An indicator light may use one of several light sources. In some applications, a sound indicator, such as a buzzer, is used in addition to a light indicator.

h. Projector



A projector is an output device that projects an image

onto a large surface, such as a white screen or wall. It may be used as an alternative to a monitor or television when showing video or images to a large group of people. Projectors come in many shapes and sizes though they are commonly about a foot long and wide and a few inches tall. They can be mounted on ceilings or may be freestanding and portable.

i. IR LED screen

An Infrared light emitting diode (IR LED) is a special purpose LED emitting infrared rays ranging from 700 nm to 1 mm wavelength. Different IR LEDs may produce infrared light of differing wavelengths, just like different LEDs produce light of different colors. IR LEDs are usually made of gallium arsenide or aluminium gallium arsenide. In complement with IR receivers, these are commonly used as sensors. The appearance of IR LED is same as a common LED. Since the human eye cannot see the infrared radiations, it is not possible for a person to identify if an IR LED is working. A camera on a cell phone camera solves this problem.

j. 4x4 keypad



Typically, one port pin is required to read a digital input into the controller. When there are a lot of digital inputs that have to be read, it is not feasible to allocate one pin for each of them. This is when a matrix keypad arrangement is used to reduce the pin count. Therefore, the number of pins that are required to interface a given number of inputs decreases with increase in the order of the matrix.

k. LCD Display



LCD (liquid crystal display) is the technology used for displays in notebook and other smaller computers. Like light-emitting diode (LED) and gas-plasma technologies, LCDs allow displays to be much thinner than cathode ray tube (CRT) technology. LCDs consume much less power than LED and gas-display displays because they work on the principle of blocking light rather than emitting it. An LCD is made with either a passive matrix or an active matrix display display grid. The active matrix LCD is also known as a thin film transistor (TFT) display. The passive matrix LCD has a grid of conductors with pixels located at each intersection in the grid.

IV. IMPLEMENTATION

The system authentication is done by the microcontroller. On switching on the microcontroller the keypad gets activated for the password to be entered. If the password is verified the controller output is given to the relay module and then to the driver. An indicator is used indicate Since the output from the microcontroller is low, driver amplifies the signal and actuates the relay to control the IR LEDS and the projector. The relay is used to control one electrical circuit by opening and closing contacts in another circuit which is connected to the projector. The IR screen and the projector works in parallel. In case the connection between the IR LED'S screen and projector is disconnected or short circuited. The indicator (buzzer, LED) will notify the error to the operator.

V. EXPERIMENTAL RESULTS

On placing the IR LEDs behind and around the screen in the cinema theatre, the video playing on the screen becomes blur or scrambled. The wavelength of the IR(700nm-1mm) is longer than the visible light wavelength(400nm-700nm) the audience can watch the movie without disturbance but since the camcorders are sensitive to IR light the recorded content becomes blur or unfit to watch.

VI.FUTURE SCOPE

Increase the range of the IR LED'S screen by applying 100watts IR LED and then making anti piracy screening system wirelessly.

VII. CONCLUSION

This system provides a method to prevent the illegal recording of movies in theatres. Thus targeting the grey market of piracy. The IR transmitters are used in order to make the captured video useless. There can be various other application of the system which requires high degree of privacy and security such as highly confidential conferences, meetings, research centers etc.

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