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Anti-Piracy Screening System

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***Abstract*— Privacy protection is an important aspect in this present era of technology and exploring information. The major devices responsible for this action are high advanced cameras and mobile phones and in recent times pen cameras. To overcome this problem different kinds of techniques are being introduced regularly like using modulation of light, watermarking, annoyance maximizing etc. Here the main challenge occurred till now is to find out the user who is capturing the information. For this we are planning on placing IR LED s behind the screen where the information is projected and since the humans cannot view the infrared rays which is being generated continuously throughout the display of the information we can protect the information from anybody who tries to record or pirate the information during the run of information on the screen which is done by the comprising of IR filters which cannot prevent the IR rays to interfere.**

***Keywords*— *Cameras, Mobile phones, water marking, modulation, infrared rays, piracy*.**

I. INTRODUCTION

In our updating lives every day the growth of Internet has brought a drastic change in terms of developing new devices. Internet is able to provide fast access to all types of copyrights available and also all kinds of information and media.

Piracy is usually referred as an unauthorized duplicate copyrighted content which will later be sold at lower price substantially in grey markets. The copy which is set to release finally may also be leaked from one of the team members in order to make money. Another common type is to record the film completely sitting inside the movie theatre and uploading them on websites and also prepare DVDs of the recorded material and sell them gradually in the streets.

Most of the high budget films which are released are made available easily within some days or few hours of release because of these above mentioned methods.
Hindering this piracy problem has always been a challenge and the most preferred priority for the movie theatres.
For this issue the markets around the world have taken serious policies and also through prosecution trying to find a solution to this movie pirating.
Copyright law protects the creative work of each individual and making unauthorized copies is a criminal offence for it brings losses to the creator who has invested in the making of the film. For this problem the staffs of the movie theatres are provided with night vision goggles to find out who may be recording the film which is being screened.

Instead of doubting every audience as a movie pirate, we can use an anti-piracy movie screening system in order to avoid pirating movies without any disturbance to other viewers.

II. METHODOLOGY

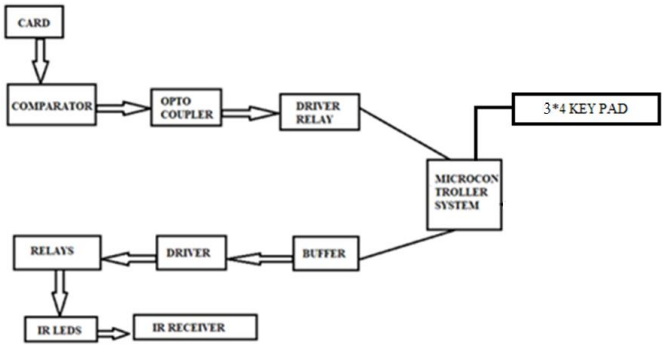

Fig 1: Block Diagram of a Proposed work.

Card:-

A smart card is a device which includes a built-in device that connects to a reader with a remote contactless radio interface which is used in authentication process. smart card includes built-in microcontroller

Comparator:-

A comparator that takes 2 parameters and determines if compared values is high or low with reference value which is previously set. Here comparator is used to verify the authenticated user

Keypad:-

A 3x4 keyboard is used in this system to enter the user's password during the authentication phase. It has 16 buttons for the human interface. These are connected to microcontrollers using input/exit pins

Opto-couplers:-

Opto-couplers transfer electrical signals to provide coupling with electrical isolation between its input and output. Transmission takes place using light waves. Opto-couplers prevent the rapid evolution of tension or tension on one side of a distortion circuit transmissions or damaging components on the other side of the circuit thus ensuring isolation. Opto-coupler consist of photo-diode and photo-transistor

Driver:

The Driver consists of series of Darlington transistor pairs providing high current gain which is above

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1000. A low signals from any device can be used to drive a large load.

Buffer:

Buffers helps in providing sufficient drive capability to transmit signals to the next stage. Here buffers are used to retains the digital value and helps in impedance matching.

Relay:

They are electro mechanical switches which used in controlling of several IR LEDs. It works on electromagnetic phenomenon. relays switches between different loads. They can be driven by a low power signal. relays takes 12V for its operation.

Anti-piracy screening system is the main solution for avoiding movie piracies around the like as shown in Fig1. We use a smart card in this case for the authentication purpose for the owner to operate the system.

We also use comparators and opto couplers for the second stage of authentication where the password entered for the microcontroller to get actuated and from that the IR LEDs placed behind the screen is are turned ON and starts to generate which will eventually happen through the driver and buffer circuits and then the IR receivers are placed next to the projector to receive the IR signals which are not visible to human eyes but affects the camera video clarity if tried to record from it.

III. IMPLIMENTATION

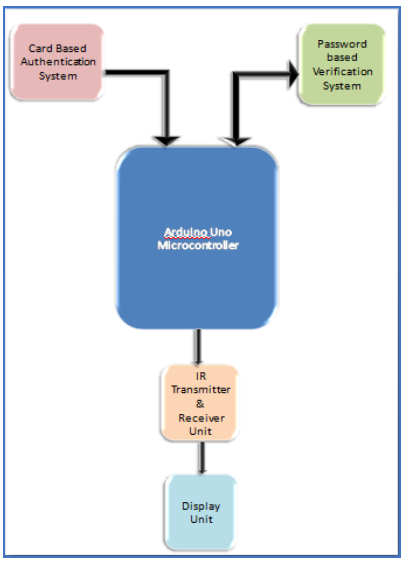

Fig 2. Proposed system design

The respective theatre officer will have the IR receiver authentication which will have a smart card to work with.

The unit will also have the information checked with preloaded reference information which will be stored in the comparator.

There will be a digital output developed by the comparator which will be passed on to a driver which is used to actuate the microcontroller verification unit when driven through the driver relay.

The keypad gets activated for the password to be entered on switching ON the microcontroller and then when the password is verified for the right code.

The controller output after password verification is done is given to a driver through a buffer for obtaining impedance matching between them which is used to amplify the output obtained from the microcontroller because it is low in rate for further process.

The amplified output from the buffer is used to drive the IR transmitter circuit and IR signals are transmitted which are placed next to the screen and along the perimeter of the screen which is transmitted towards the viewers to the receiver circuit which is placed next to the projector from which when tried to record any information from a camera.

IV. RESULT AND DISCUSSION

IR LEDS are embedded behind the movie screen and are made to blink constantly at a frequency of KHz. The advantage here is that IR rays are in the wavelength(700nm-1mm) which is beyond the spectrum of visible light ,hence these rays are invisible to the human eyes. But a camcorder can perceive these rays and this results in distortion of the image. An additional password based authentication unit is also present for the operator to actuate the IR LEDs.

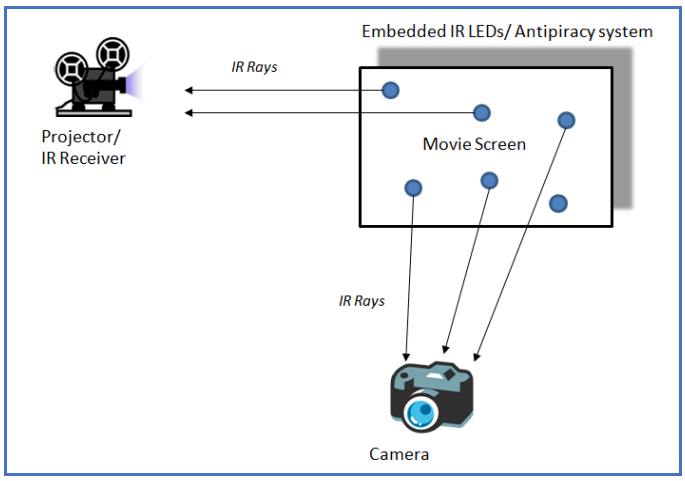

Fig 4. Demonstration setup

V. CONCLUSION

In this paper an efficient and cost effective method to prevent movie piracy is proposed .It is cost effective because of the use of IR LEDs

This can be further used in places where high degree of confidentiality is necessary whilst screening.

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