A REPORT

ON

THREE DAYS WORKSHOP

In the title of

"CCTV INSTALLATION AND SERVICING"

12th OCTOBER 2022 to 15th OCTOBER 2022.

Organized by

Department of Electronics and Communication Engineering

In Association with

IEEE – Madras Chapter – STB16621

KINGS COLLEGE OF ENGINEERING, PUNALKULAM

A NAAC Accredited Institution

Recognized under 2(f) & 12(B) of UGC

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

Phone : 04362-282474, 282395 Website : www.kingsindia.net

CONTENTS

ABOUT THE WORKSHOP:

Three days workshop was organized for third and final year ECE students in the title of **"CCTV Installation and Servicing"** from 12th October 2022 to 15th October 2022. Totally 85 students have enthusiastically participated in this workshop.

The Workshop started with Tamizhthai Vazhththu. Ms.K.Gayathri, Final ECE welcomes the gathering. Mrs.N.Mangaiyarkarasi, HOD/ECE delivered the Inaugural address. Mrs. D.Vennila, AP/ECE introduced the Resource persons.

Day-1 - Mr.P.Raja Pirian, Assistant Professor, Kings College of Engineering.

Day-2 - Mr.T.Jeyaseelan, Assistant Professor, Kings College of Engineering.

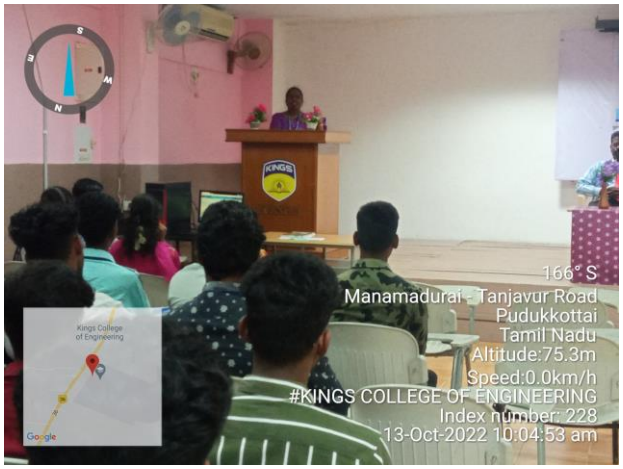
Day-3 - Mr.Jeorge Nelson and their team from Jeorge Tech Solutions, Kumbakonam.

OBJECTIVE:

The main objective of this workshop is to know the basics of Closed Circuit Television System and have the ability to install and service the system by their own knowledge. It's a part of an entrepreneur development initiative.

Dignitaries on the Dias.

Dignitaries and participants during Tamizhthai Vaazhthu



Welcome address by Mrs.N.Mangaiyarkarasi, HOD/ ECE

Resource Person Mr.P.Rajapirian, AP/ECE , KCE delivering the lecture to the Participants

DAY-1 WORKSHOP:

The resource person gave an excellent lecture to the students and interacted with the students about the need for Closed Circuit Television System, Basics of CCTV and its assembly. He also explained about the Digital Video Recorder system and IP address concepts.

Basics of CCTV:

CCTV (Closed-Circuit Television) is a system of cameras which record or transmit video footage for surveillance and security purposes. A complete CCTV system consists of:

- Security cameras (analogue or digital)
- Cables
- A video recorder (DVR or NVR)
- A storage unit, usually a hard drive
- A display unit, such as a monitor (optional)

Digital Video Recorder System:

A Digital Video Recorder (DVR) is an electronic device that records video in a digital format to a disk drive, USB flash drive, SD memory card, SSD or other local or networked mass storage device. The term includes set-top boxes with direct to disk recording, portable media players and TV gateways with recording capability, and digital camcorders. Many DVRs are classified as consumer electronic devices; such devices may alternatively be referred to as Personal Video Recorders (PVRs).

Benefits of surveillance cameras in public places to ensure the public safety:

- Cameras keep you and your personal property safe.
- The police can identify criminals recorded with cameras.
- Surveillance cameras protect against property theft, and vandalism. It is very difficult to get away with stealing something if there are cameras filming you. Therefore, the thief will often get caught. Surveillance cameras will catch the thief before, or during the process of committing the crime.
- If no one is aware of the crime until after it has been committed, the surveillance footage is always a crucial piece of evidence during a police investigation.
- Criminals are less likely to commit crimes in the area if they know they're going to be being filmed the whole time.
- Having cameras in public places make people feel safe.
- The growth of facial recognition and analytical software enables much greater predictive insights into criminal behavior and more accurate reporting.

IP Networking Basics

- Each device on an IP network requires 3 different pieces of information in order to correctly communicate with other devices on the network: an IP address, a subnet mask, and a broadcast address. Usually each of these numbers written as four "octets" (e.g. 198.41.12.151, 255.255.255.0, and 198.41.12.255).
- Every IP address is really made up of two pieces: a "network" portion, which tells routers what group of devices a packet should go to (e.g., any, a campus, etc.) and a "host" portion which tells routers what specific device among that group the packet should go to.
- By examining the destination address in an IP packet that must be forwarded, and by using information that has either been statically configured or dynamically gathered from other routers, any router can determine the optimal path for forwarding packets from one group to another.
- Each group of devices on an IP internet needs to have a unique network portion, and each device within that group also needs a unique host portion. In the case of the Internet, this uniqueness is made possible by indirectly getting all network portion assignments through a central clearinghouse called the Network Information Center or "NIC." The NIC assigns blocks of addresses to Internet Service Providers (ISPs), who then assign these addresses to their customers.
- If CCTV network will be, connected to the Internet, it will need to get a unique network address from your ISP or network administrator.
- How much of any given address is the network part and how much is the host part is determined by the "class" of the network. In each case, the part of the address not used for the network portion is left as the host portion.
- The following table shows the IP classes.

Table 1 : IP Address Classes

Class	Network Portion	Hosts Allowed
A	from 1.0 to 127.0	approx. 16 million
B	from 128.0 to 191.255	65,536
C	from 192.0 to 223.255.255	255

DAY-2 WORKSHOP:

The resource person started the session by explaining the block diagram of CCTV and he gave the introduction about DVR, how to install the hard disk and its accessories. He explained about the hard disk used for DVR and the recording system. Finally, he summarizes the real-time functionalities of CCTV in a detailed manner.

He gave a nice explanation about the block diagram of CCTV and also explained each and every block clearly.

- The camera tube is used to transform light from an item that the camera is focused on into electrical impulses.
- The lens mechanism focuses light from the object on the light-sensitive surface (called the mosaic or photoconductive material) in the camera tube.
- An electron gun is housed in the camera tube, which creates and regulates a stream of electrons.
- The narrow stream of electrons is directed by the cannon in such a way that it crosses (scans) the mosaic line by line. When the beam hits a point in the mosaic, it creates a little electrical impulse that corresponds to the brightness or darkness of that specific small area of the image.
- The visual amplifier receives the electrical impulses created in this manner.

He also explained about the Control Unit and Receiver/Monitor unit.

Resource Person Mr.Jeyaseelan, AP/ECE , KCE delivering the lecture to the Participants

In his lecture, he explained how to choose the right equipment

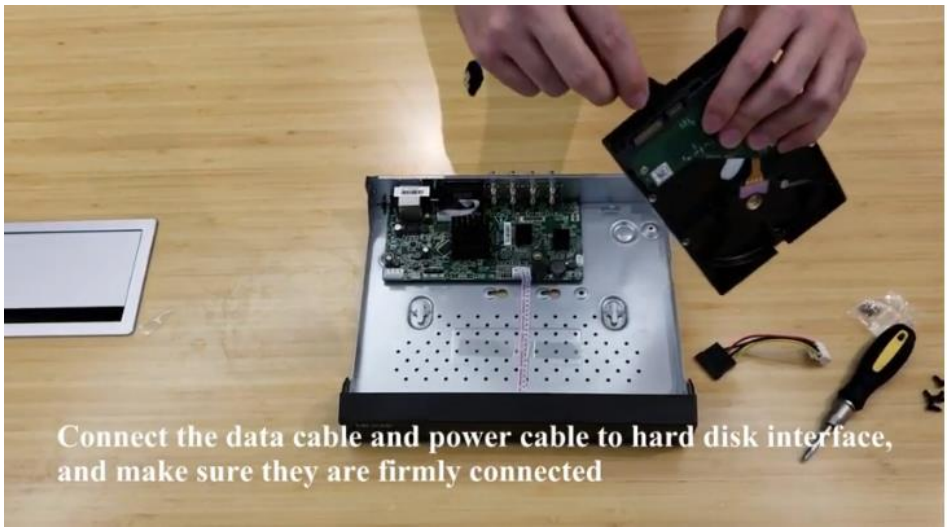
- Digital Video Recorders (DVRs) – It is a device which process video signals from cameras and transmit them through a coaxial cable.
- Network Video Recorders (NVRs) – It differs from DVRs by recording and transmitting video footage via a network cable.

- Dash Cams and Accessories – It is also called as dashboard cameras, they're installed in vehicles to monitor road scenery to capture evidence in an accident or collision.
- CCTV Cameras and Accessories – Cameras, record the video footage and it is the forefront of security installations.
- Monitors – These are used to transmit video signals to people monitoring the footage, for surveillance purposes.
- Dummy cameras – These are wireless false cameras designed to look like real ones, providing a less maintenance and cost-effective deterrent.
- Mirrors – Designed to be used alongside cameras, they help to increase visibility to improve the effectiveness of cameras by reflecting a wider angle view.

DAY-3 WORKSHOP:

This session was completely hands on session. The resource person have demonstrated about the various cameras and its accessories, how to install camera with DVR. They gave clear explanation about how to setup the DVR for real-time capturing.

Resource Person Mr.Jeorge Nelson gave demo to the participants during the Hands on Session



Finally, Mr.W.Newton David Raj, AP/ECE gave the vote of thanks with words and he appreciated all the student participants and the resource persons for their endless effort. Thus the workshop ended successfully.

OUTCOME:

- At the end of the workshop the students gathered more knowledge on how to install and Repair CCTV system. Able to identify the different types of camera.
- Students can able to identify the functional components through visual inspection and by using multi meter.
- Students can able to select suitable cameras & DVR to provide the better solution to the customers.
- They have understood the CCTV camera installation and the requirement in terms of equipment, system, tools, and applications for a particular site.

1. 2/11/22
2.
3.

Coordinator(s)

2/11/2022

HOD/ECE

02/11/2022

PRINCIPAL

PRINCIPAL
Kings College of Engineering
PUNALKULAM-613 303.

Annexure: I

BROCHURE

22 YEARS OF ACADEMIC EXCELLENCE

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PUNALKULAM - 613 303, NEAR THANJAVUR.

IEEE MADRAS SECTION STB16621

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Department of Electronics & Communication Engineering

Organizes

THREE DAYS

WORKSHOP on

CCTV INSTALLATION AND SERVICING

Date : 13-10-2022 to 15-10-2022

Time : 10 : 00 am - 04.00 pm

Resource Persons

Mr.P.Raja Pirian AP/ECE

Mr.T.Jeyaseelan AP/ECE

Technical Support

Mr.Jeorge

JEORGE TECH SOLUTIONS

KUMBAKONAM

TOPICS TO BE COVERED

Basics of Security & Surveillance.

Functions of Video Surveillance.

Types of cameras and their functions,

Sensors, Light, Lens and Zoom.

DVR and switcher.

Principles of network, remote accessing.

Installation of CCTV camera.

Safety procedures.

Registration Fee : Rs.150/-

Last Date for Registration : 12/10/2022

Mrs.N.Mangaiyarkarasi
CONVENER

Dr.J.Arputha Vijaya Selvi
PATRON

Mr.W.Newton David Raj

Mr.R.Thandayuthapani

Mrs.D.Vennila

COORDINATORS

Annexure: II

Sample Certificates

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Punalkulam, Gandarvakottai (tk), Near Thanjavur, Pudukkottai - 613303

22 YEARS OF ACADEMIC EXCELLENCE

IEEE MADRAS SECTION STB16621

Certificate of Participation

This is to certify that Mr./Ms. ..... MAHALAKSHMI R .....

from .....III year ECE.....has actively participated in the "Three Days National Level Workshop on CCTV Installation and Servicing" from 13-10-2022 to 15-10-2022 organized by Department of Electronics and Communication Engineering.

Mrs.N.Mangaiyarkarasi
CONVENER

Dr.J.Arputha Vijaya Selvi
PATRON

Coordinators : Mr.W.Newton David Raj Mr.R.Thandayuthapani Mrs.D.Vennila

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Certificate of Participation

This is to certify that Mr./Ms. ..SATHISHKANNAN S .....

from .....III year ECE.....has actively participated in the "Three Days National Level Workshop on CCTV Installation and Servicing" from 13-10-2022 to 15-10-2022 organized by Department of Electronics and Communication Engineering.

Mrs.N.Mangaiyarkarasi
CONVENER

Dr.J.Arputha Vijaya Selvi
PATRON

Coordinators : Mr.W.Newton David Raj Mr.R.Thandayuthapani Mrs.D.Vennila