



CCTV SECURITY CAMERA SYSTEM

PRESENTATION OF THE PROJECTX-FINAL LEVEL 1.



GENERAL DESCRIPTION

- ▶ Title of the ProjectX
- ▶ CCTV SECURITY CAMERA SYSTEM
- ▶ Core area
- ▶ GENERAL / KNOWLEDGE: Electronics
- ▶ PARTICULAR / ACTIVITY: Design, Assembly, Measurement, Installing
- ▶ Promoting school
- ▶ Meram Vocational and Technical High School
- ▶ Schools participants in the revision of the ProjectX
- ▶ ValdoRio (Portugal)
- ▶ University of Pitesti (Romania)
- ▶ Level of the students (according to EQF) - [see Europass supplement certificate]
- ▶ EQF LEVEL 3

Learning Outcomes achieved (to be developed in the future related with ECVET credit system)

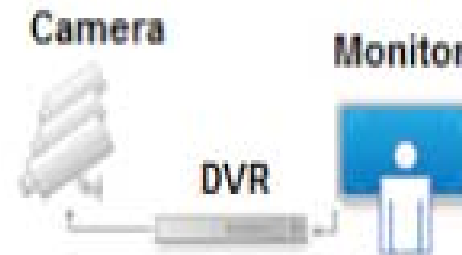
Learning Outcomes achieved (to be developed in the future related with ECVET credit system)

- Understand all components of CCTV security camera systems
- Be able to choose proper camera according to the environment
- Be able to install CCTV system
- Be able to set up DVR recording menu

Time that is necessary to do the Project

Theory:8

Practice: 30



Link to real companies in your region (it is just informative)

NAME: Tezeller Electronics Ltd.Şti. WORKPLACE: Konya

NAME: Karacan Electronics WORKPLACE: Konya

Learning Outcomes

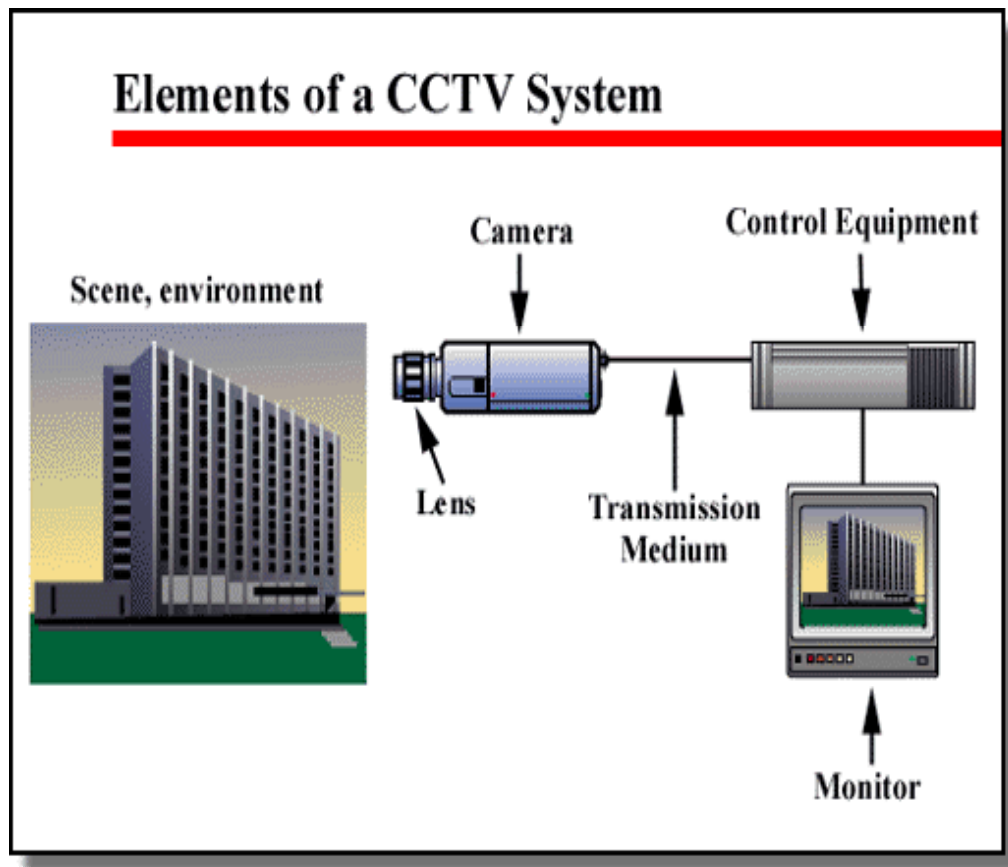
Understand all components of CCTV security camera systems

Human observers are costly and valuable resources. CCTV (Closed Circuit Television) allows security managers to use this resource judiciously. There are a number of common situations where human safety, concealed observation, or resource management are better served with CCTV rather than human observers. These situations include:

- Observation of remote areas (parking lots, garages)
- Observation of hazardous areas (radioactive waste dumps, chemical storage areas)
- Discreet or concealed observation (loading docks, lobby areas)
- Sustained observation of areas with infrequent activity (warehouses, rail yards)
- Simultaneous observation of multiple areas



Understand all components of CCTV security camera systems



Understand all components of CCTV security camera systems

▶ The Components of CCTV System

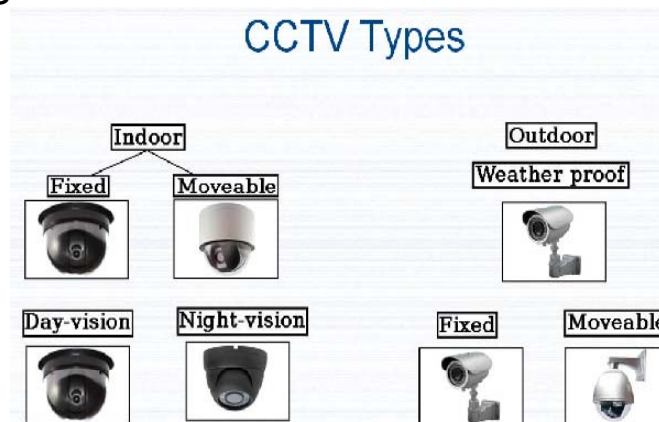
- ▶ Designing a CCTV system requires the planner to fit a number of important components together. There are six (6) design elements to consider when designing any CCTV system:
 1. The scene is the area of surveillance – the area which is to be observed and its environment. This includes lighting, weather, security of the CCTV equipment and the detail desired of the picture displayed by the monitors.
 2. The lens is the optical component of the system which "defines" the image of the screen – its size, shape and focus.
 3. The camera converts the optical image passed by the lens into the electronic signal transmitted to the monitor.
 4. The transmission medium (optical fiber, coaxial cable, microwave, twisted-pair cable, etc.) carries the electronic signal generated by the camera to the monitor.
 5. The monitor receives and displays the transmitted image.
 6. The control equipment (Video Signal Management) includes switchers, multiplexers, signal compressors and processors, and remote positioning devices (pan/tilt/zoom controllers).

Be able to choose proper system components according to the environment

Any CCTV images must be adequate for the purpose for which you are collecting them. It is essential that you choose camera equipment and locations which achieve the purposes for which you are using CCTV. The cameras must be sited and the system must have the necessary technical specification to ensure that images are of the appropriate quality.

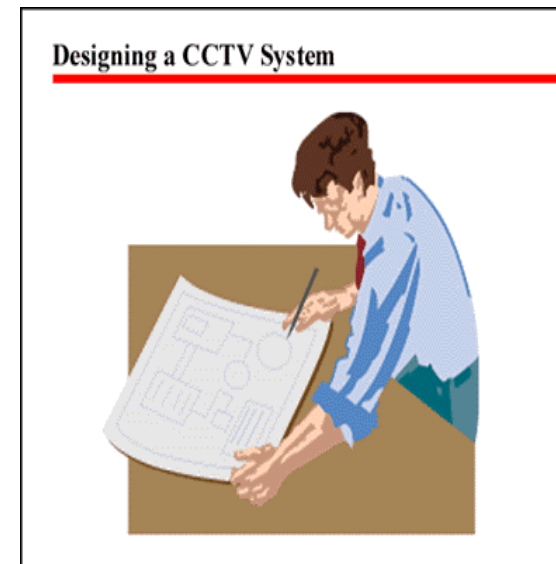
When selecting a camera, system designers must consider a number of factors that affect the quality of the image and system reliability. These factors fall into seven general categories:

- image sensor resolution
- signal-to-noise ratio
- automatic light compensation
- synchronization
- signal output
- environmental conditions and
- camera reliability
- dimensions and weight



Learning Outcomes

- ▶ Be able to install CCTV system
- ▶ Designing a CCTV system can be a lot like house construction. It is often easier to design and proceed with all new construction instead of integrating new components into existing systems. Whether the project is new construction or upgrading (retrofitting) an existing system, several fundamental issues must be addressed prior to the installation process.
- ▶ A carefully designed CCTV system will ensure:
 - adequate coverage
 - extendibility for future additions and enhancements
 - satisfied customers.



Learning Outcomes



Designing proposed cctv system with four cameras

- Selection of system components and equipment
- Putting the lens on the box camera
- Adjusting camera's lens with test equipment to realize focus and zoom
- Placing cameras on the proper locations
- Implementing fine tuning operations of cameras for direction, focusing and angel with test monitor

Learning Outcomes



- Connecting cameras to DVR with CCTV cable
- Implementing the adjustment of DVR recording set up menu
- Testing the system