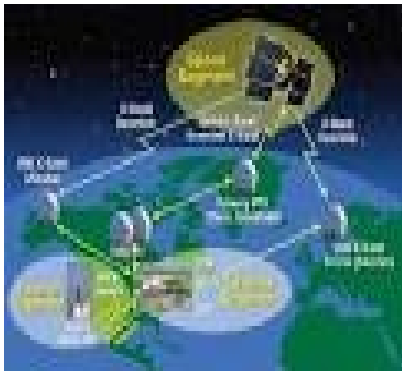
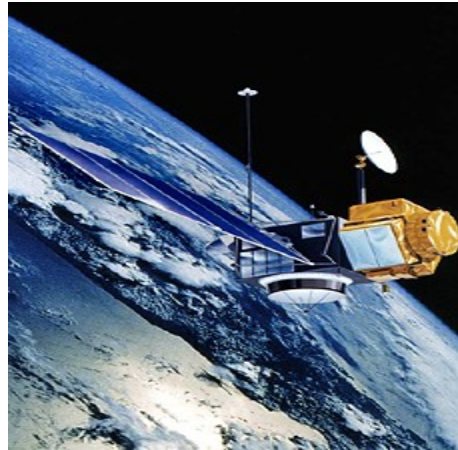


Satellite Surveillance and Thermal Imaging

- ❑ Satellites use various technologies:**
 - To take detailed photographs of the earth**
 - To show our homes and backyards**
- ❑ Some state government agencies use the photos**
 - To detect building or property improvements that would raise property taxes**
 - To find people who have built backyards porches without permission**

A satellite with multiple solar panels is shown in space, emitting a bright yellow beam of light towards the Earth's surface. The Earth's blue and white clouds are visible in the lower-left corner.



Satellite Surveillance and Thermal Imaging

- In 2001 (USA) the Supreme Court ruled that police could not use thermal imaging devices to search a home from the outside without a search warrant.
- The Court stated that where “government uses a device that is not in general public use, to explore details of surveillance is a ‘search’” and requires a search warrant.

Automated Toll Collection and Itemized Purchase Records

- Many *bridges, tunnels and toll roads* use automated toll collection systems
- Sensors read *a device in the car* as it goes by without stopping
- As a result, the *owner's credit card* or *bank account* gets billed for the toll
- These systems save time for drivers and reduce the costs of collection.

Automated Toll Collection and Itemized Purchase Records

- These systems allow the implementation of variable charges for different times of the day to improve traffic flow.
- The database used for billing drivers contain a record of where and when a person traveled and in some cases how fast
- The privacy concern is that marketers and government agencies can use this information to track people

Automated Toll Collection and Itemized Purchase Records

- ❑ Police use toll records in investigation
- ❑ A bridge and tunnel authority had a policy:
 - They would not disclose the driver's travel information but
 - They would disclose:
 - when required by law or
 - when presented with a court order by a law-enforcement agency

Automated Toll Collection and Itemized Purchase Records

- The automated toll systems change the toll collection situation fundamentally
- The systems keep:
 - i) Computerized records of all passing vehicles
 - ii) 24 hours a day

Automated Toll Collection and Itemized Purchase Records

- When we shop in a *supermarket or bookstores*:
- We may be observed or
- Someone else might occasionally remember what we bought but
- Before computerized checkout systems, no one recorded our specific purchases
- Law enforcement agencies have asked bookstores and online seller Amazon.com to turn over records of books purchased by particular people, sometimes with a search warrant, sometimes without one

Electronic Body Search

- Airports use an X-ray machine that displays on a computer screen:
- the image of a person's body without clothes
- the images of goods and other materials
- the weapons and packets of drugs hidden under clothes are visible in the image
- The U.S. Customs Service first used the device to examine travelers it suspected of smuggling drugs

Electronic Body Search

- After a terrorist attacks in 2001, the Federal Aviation Administration ordered the machines for airport security
- A scan by a machine is faster, more thorough, and less physically intrusion that a pat-down search.



Electronic Body Search

- What are the advantages and disadvantages of these devices?
- How does the computer technology changes the impact of a search?



Electronic Body Search

- o Using a scan machine:
 - the display shows the person's body in details
- o A director of the American Civil Liberties Union (ACLU) described a scan by the machine named “an electronic strip search”
 - It can capture images and also can store and copy it.

Who is Got Your Picture?

- ***People use security cameras:***
 - In Universities
 - In Banks
 - Insurance Companies
 - Supermarkets
 - Airports and many other places
 - Cameras detect crimes and help in investigations of crimes

Who is Got Your Picture?

- ***People use video surveillance systems:***
(CCTV - Close Circuit Television)
 - Security
 - Gambling casinos use CCTV to watch for known cheaters
 - Traffic police use CCTV to monitor traffic
 - To catch traffic law-violators
 - Supermarkets use CCTV to watch the customers from theft of goods
 - There are approximately 500000 or above CCTV in England, many outdoors in public places to deter crime
 - A Londoner is likely to be recorded dozens of times a day

Applications:

- **Applications:**

- **CCTV and Face Recognition System**

- **Positive use of these technologies provides:**

- **i) Security ii) Crime prevention**
- **But there is a clear need for:**
- ***Controls, guidelines and some limitations***

CCTV



Fighting Terrorism

- o After the terrorist attack on the ***World Trade Center*** and ***Pentagon*** on September 11, 2001
- Attitudes about ***surveillance technologies*** and ***policies*** changed drastically in the United States
- People of USA wanted to use all available tools to catch terrorist and prevent future terrorist attacks
- High-tech surveillance technologies are helpful but are not a panacea