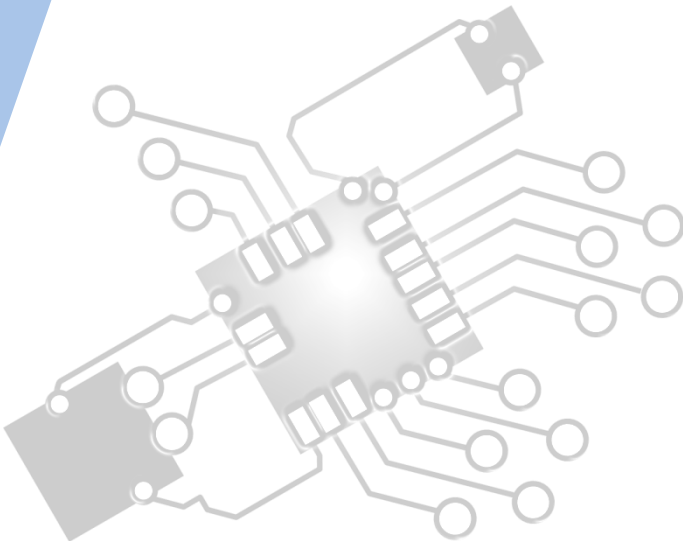




Control Systems

IB Computer Science



*Content developed by
Dartford Grammar School
Computer Science Department*



HL Topics 1-7, D1-4



1: System design



2: Computer Organisation



3: Networks



4: Computational thinking



5: Abstract data structures



6: Resource management



7: Control



D: OOP

HL only 7 Overview

Centralized control systems

7.1.1 Discuss a range of control systems

7.1.2 Outline the uses of microprocessors and sensor input in control systems

7.1.3 Evaluate different input devices for the collection of data in specified situations

7.1.4 Explain the relationship between a sensor, the processor and an output transducer

7.1.5 Describe the role of feedback in a control system

7.1.6 Discuss the social impacts and ethical considerations associated with the use of embedded systems

Distributed systems

7.1.7 Compare a centrally controlled system with a distributed system

7.1.8 Outline the role of autonomous agents acting within a larger system



1: System design

2: Computer Organisation



3: Networks

4: Computational thinking



5: Abstract data structures

6: Resource management

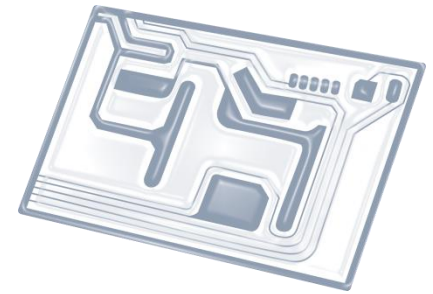


7: Control

D: OOP



Topic 7.1.1



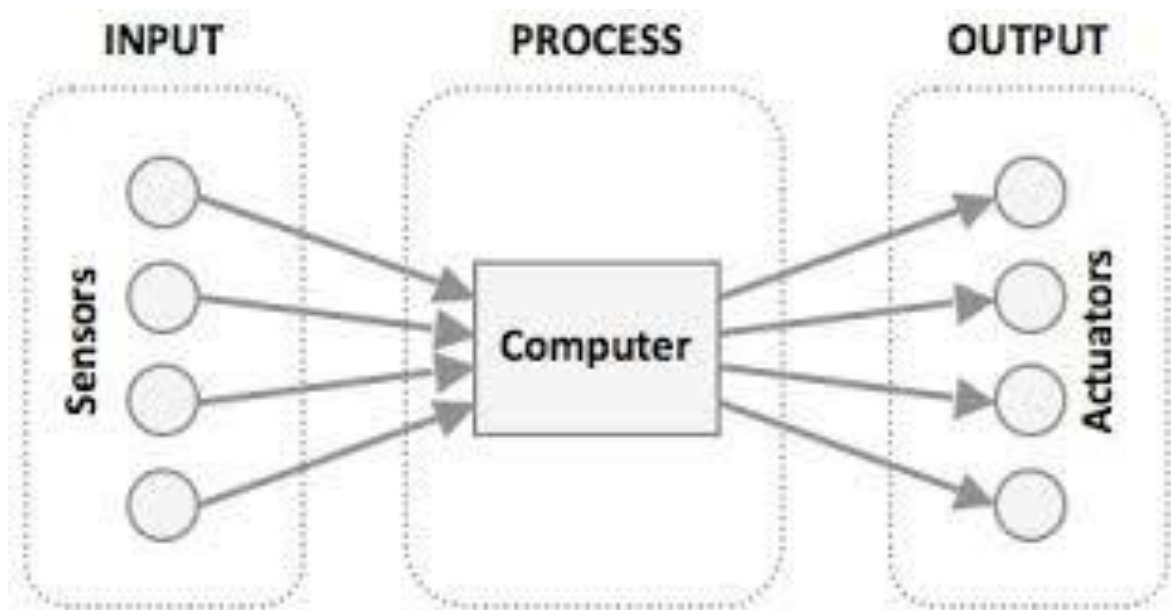
Discuss a range of **control systems**

Specifically: automated doors, heating systems, taxi meters, elevators, washing machines, process control, device drivers, GPS systems, traffic lights and other common devices

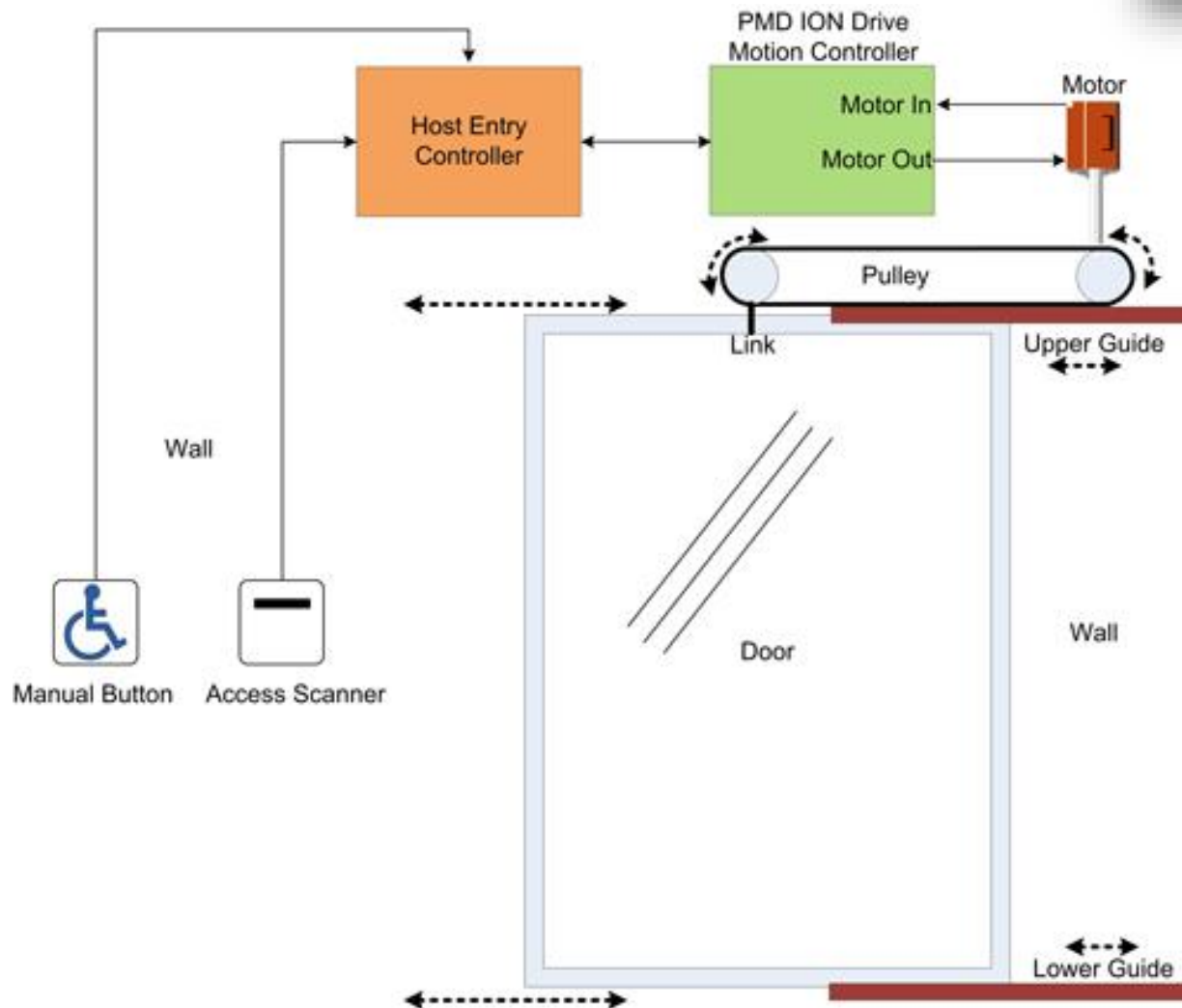


Control system

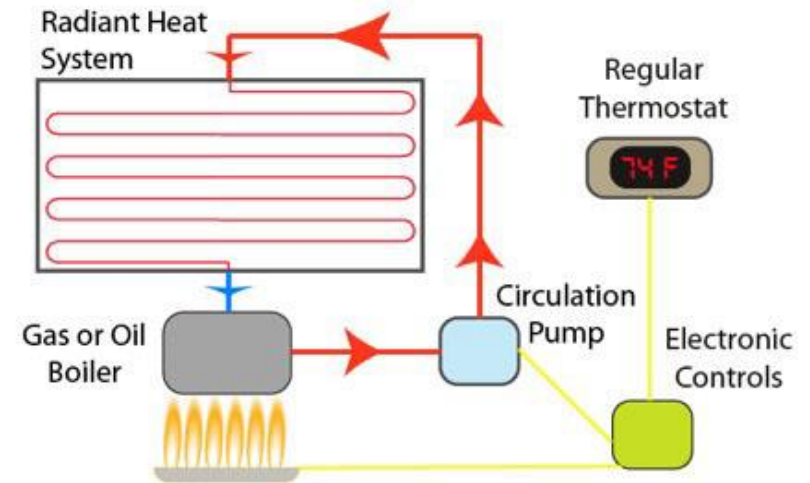
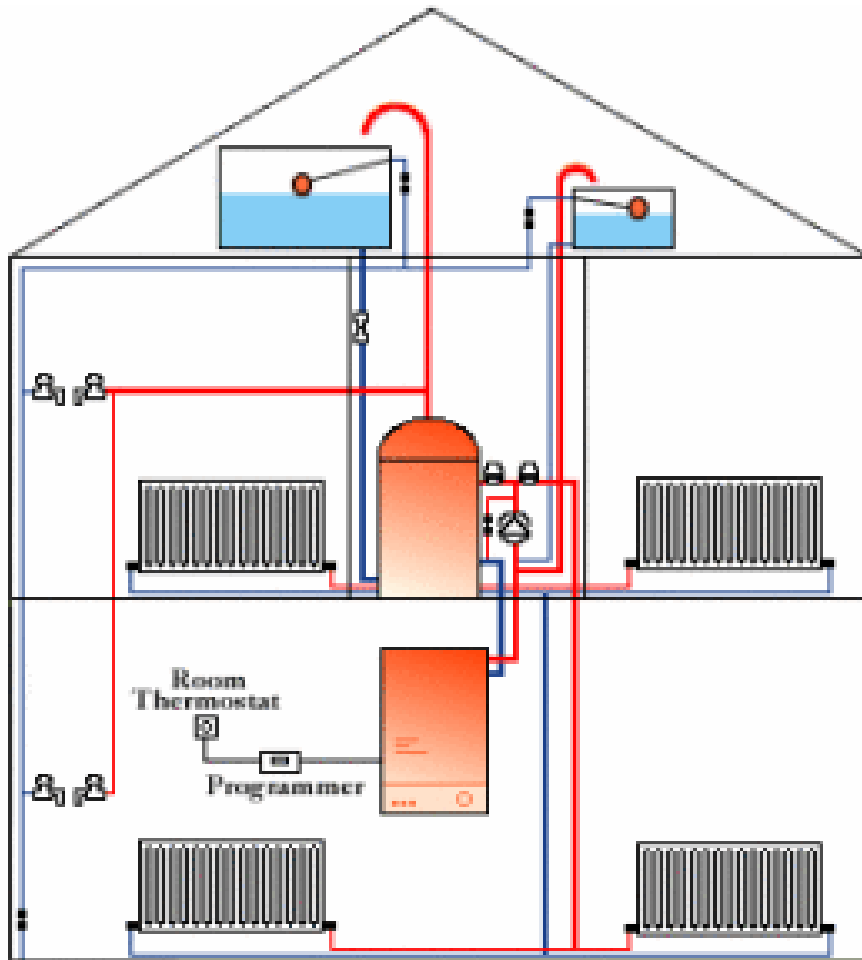
A **control system** is a device, or set of devices, that manages, commands, directs or regulates the behaviour of other devices or **systems**.



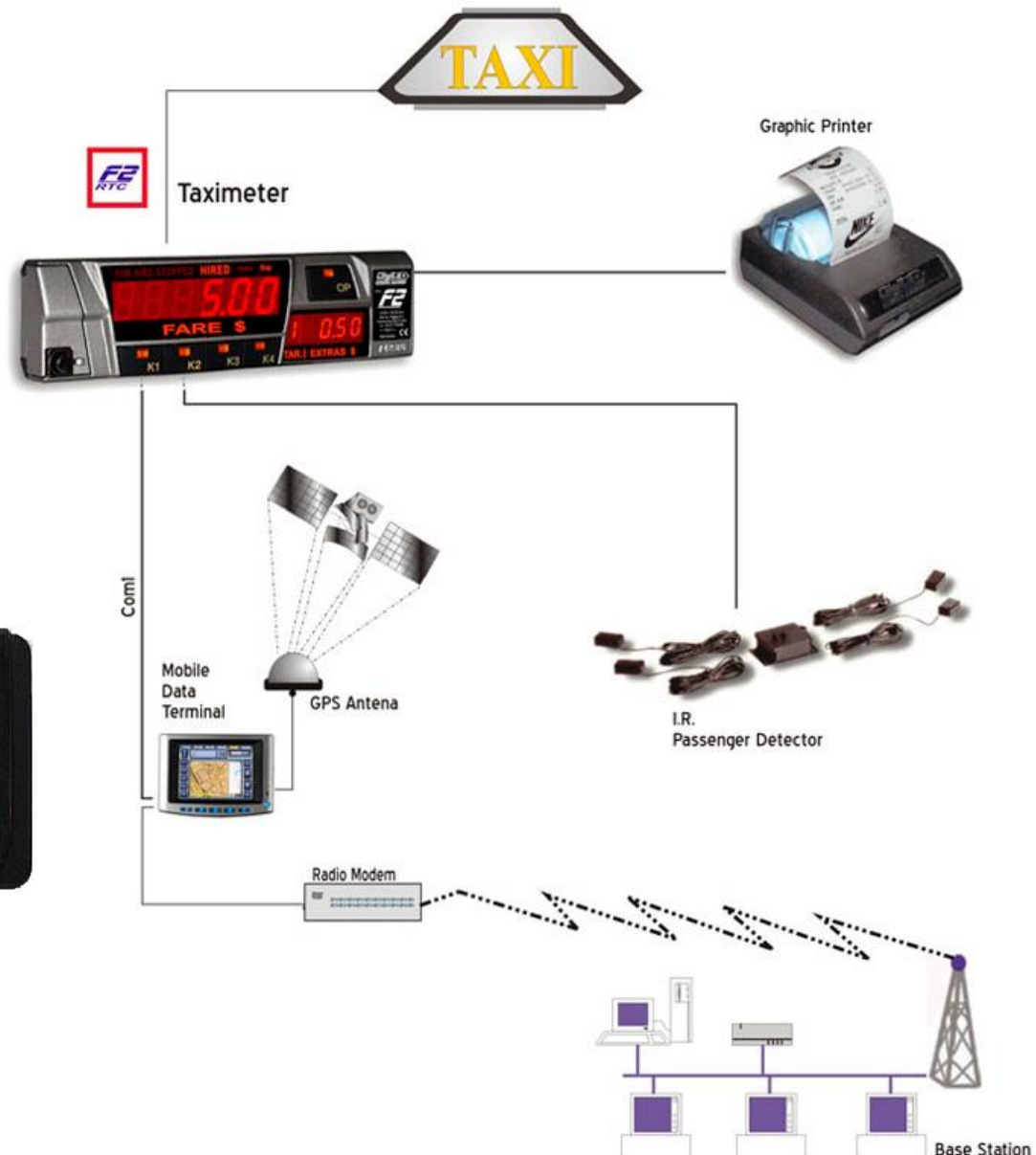
Automated doors



Heating system

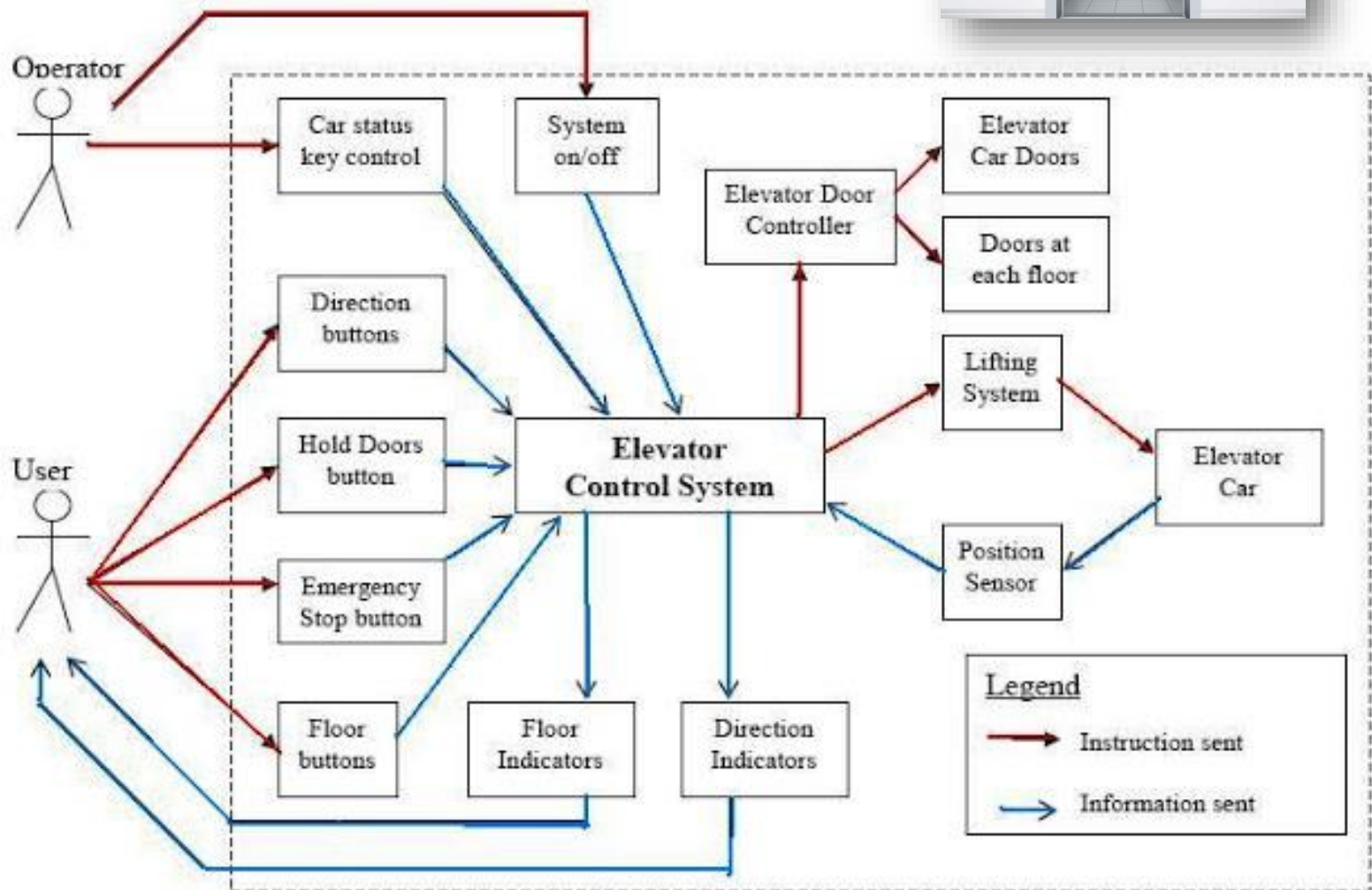


Taxi meter



<http://auto.howstuffworks.com/taxi-meter.htm>

Elevator



Washing machine

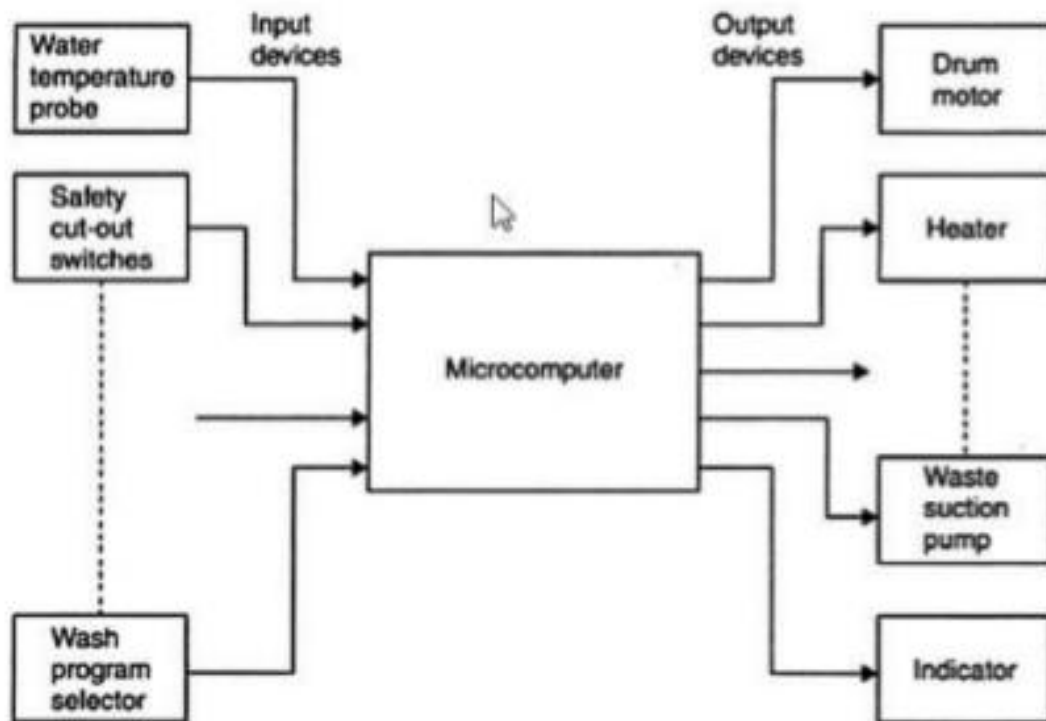


Fig. 51.6 Data flow chart for a washing machine control

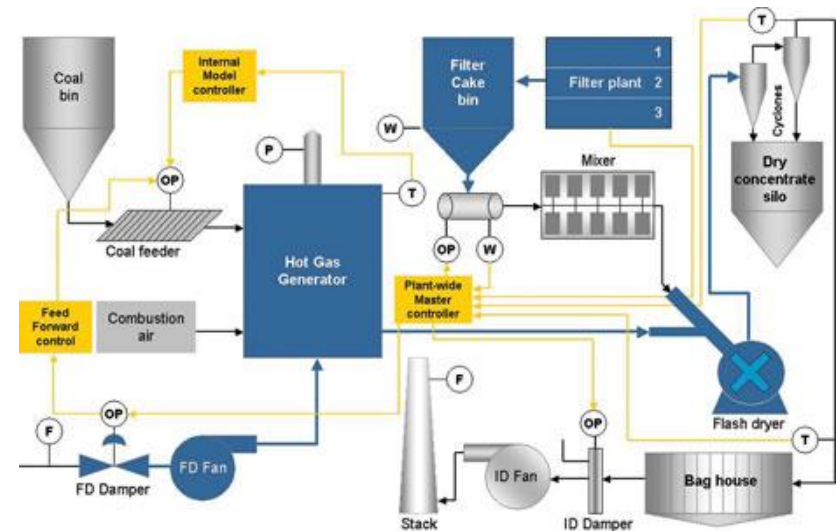
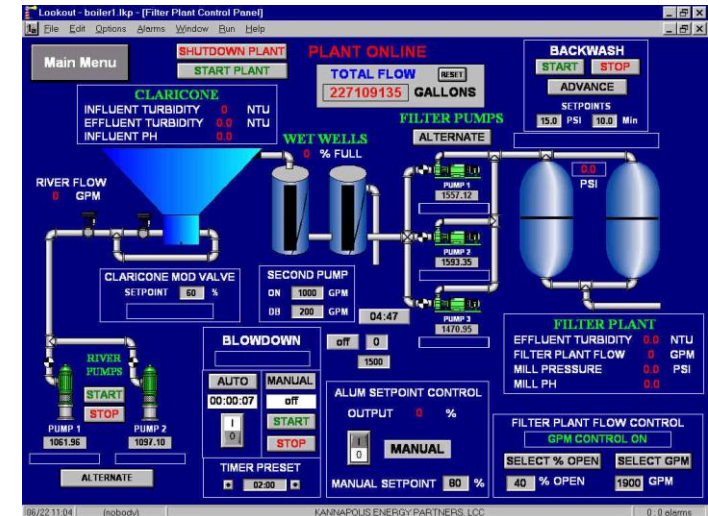
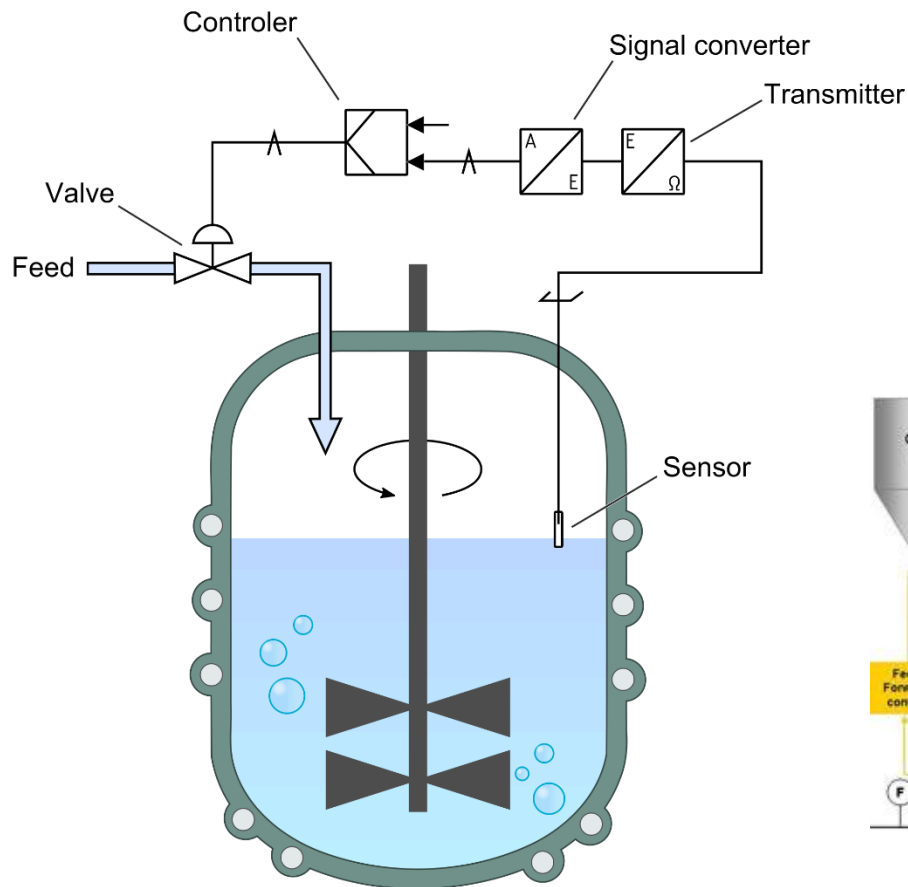


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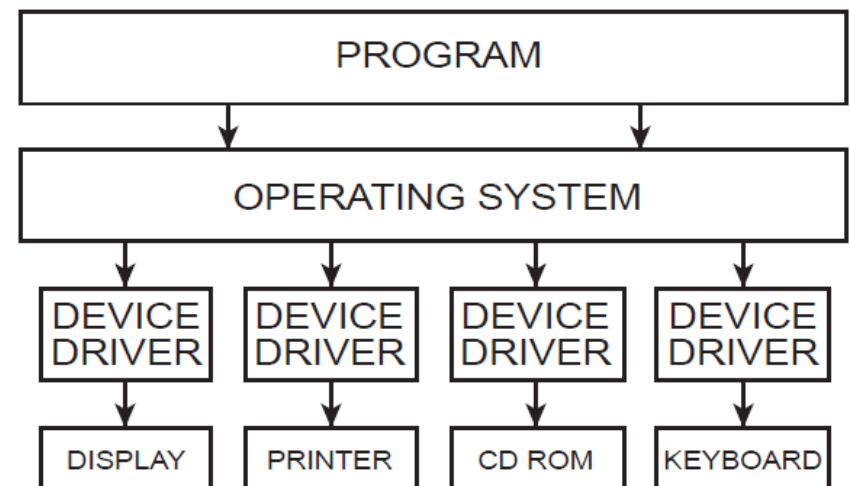
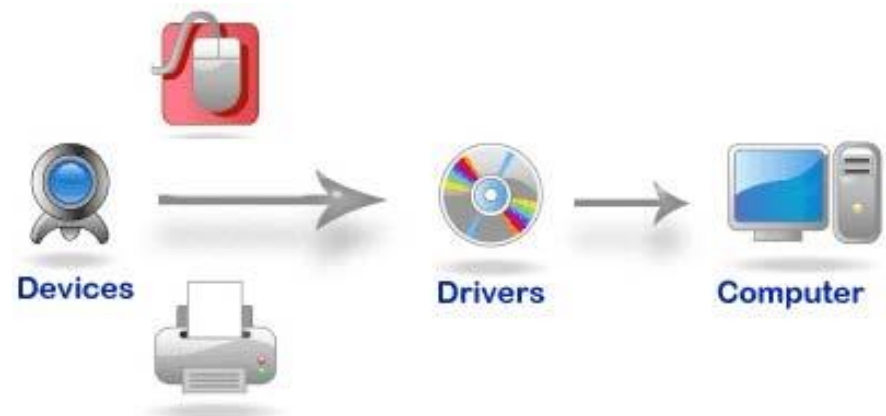
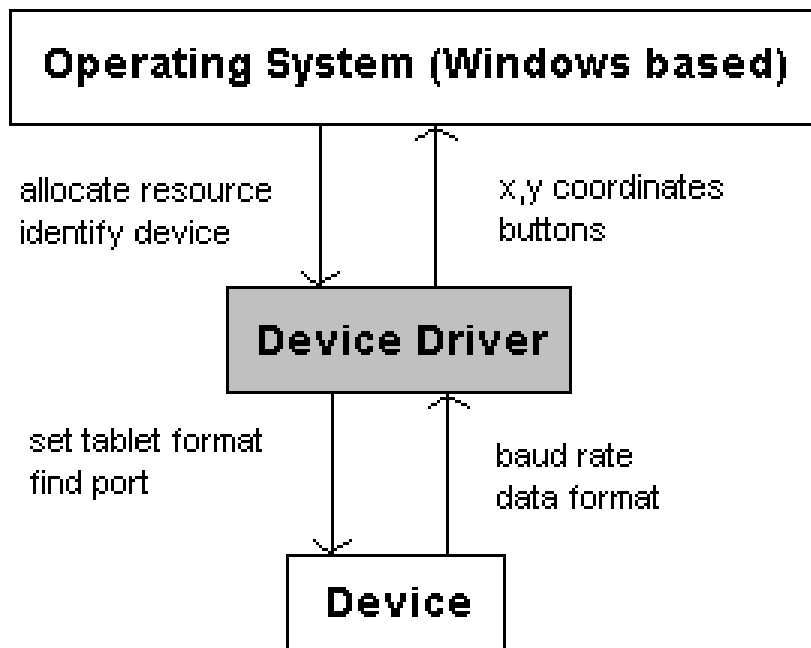
more funny stuff at FUNNYASDUCK.NET

Process control



Device driver

Simple Device Driver Model



Video: **GPS (Global Positioning System)**



Link (YouTube): <https://youtu.be/2iAgggixkO8>

Traffic lights

