Parte 1:
Visión General del Control Automático

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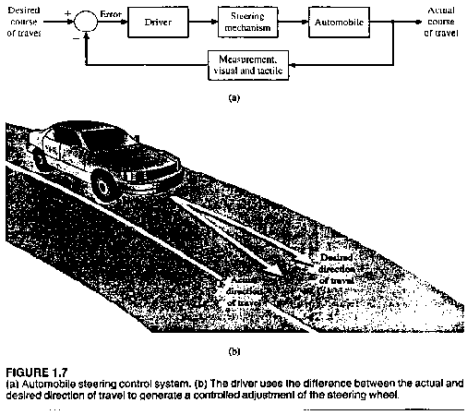
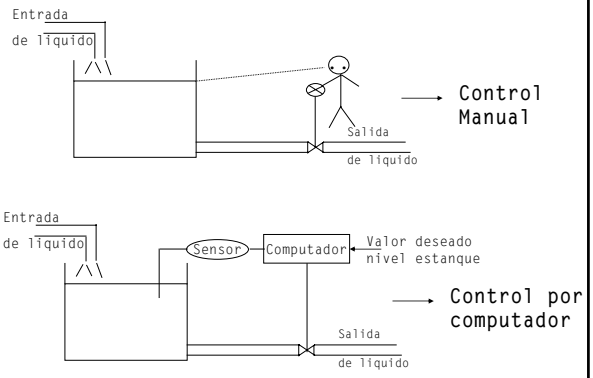


FIGURE 1.7
(a) Automobile steering control system. (b) The driver uses the difference between the actual and desired direction of travel to generate a controlled adjustment of the steering wheel.

Control Automático



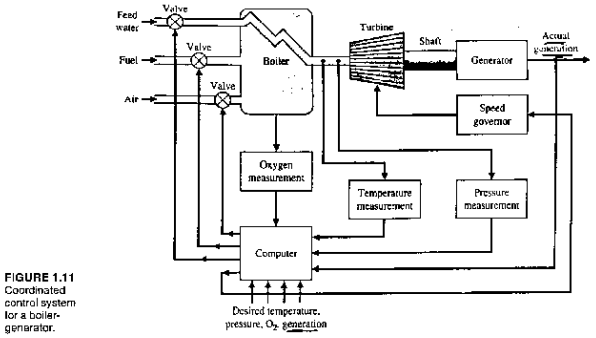


FIGURE 1.11
Coordinated control system for a boiler-generator.

Entrada = Acción de control = variable manipulada

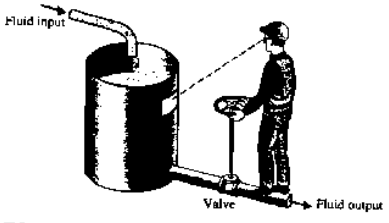


FIGURE 1.9
A manual control system for regulating the level of fluid in a tank by adjusting the output valve. The operator views the level of fluid through a port in the side of the tank.

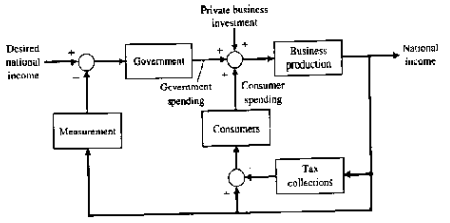


FIGURE 1.14
A feedback control system model of the economy.

Definiciones Básicas

- Planta
- Proceso
- Sistema
- Sistema de control

Sistemas de Control de Sistemas

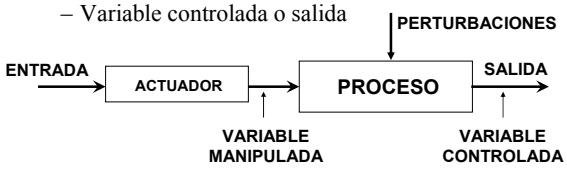
- Control en lazo abierto o guiado
- Control en lazo cerrado o realimentado
- Control prealimentado
- Control avanzado

Definiciones Básicas

- Variables manipuladas
- Variables de estado
- Variables controladas
- Perturbaciones
- Set-points o referencias

Control en Lazo Abierto

– Proceso
– Dispositivo de acción (actuador)
– Variable manipulada o de control
– Variable controlada o salida



Tecnologías de Sistemas de Control

- Control manual
- Control analógico
- Control digital

Ejemplo: Control en Lazo Abierto

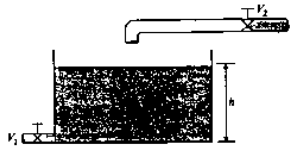
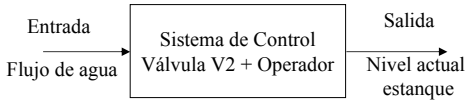


Figure 1.1 Tank-level control system.



Ejemplo: Control en Lazo Abierto

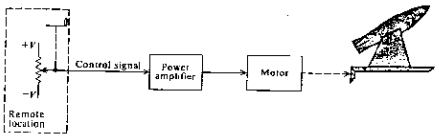
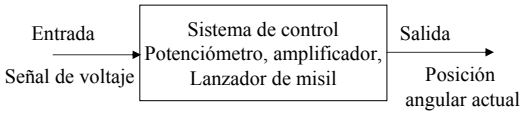


Figure 1.3 Controlling the position of a missile launcher from a remote location.



Control Avanzado

- Control óptimo (predictivo)
- Control adaptivo
- Control no lineal
- Control difuso
- Control neuronal

Ejemplo: Control en Lazo Cerrado

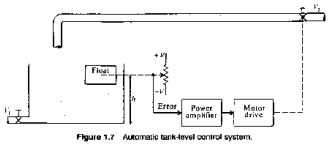
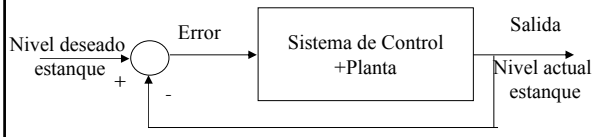


Figure 1.7 Automatic tank-level control system.



Ejemplo: Control en Lazo Cerrado

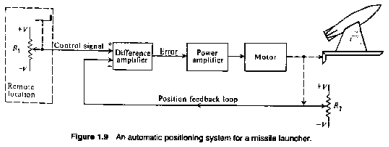


Figure 1.9 An automatic positioning system for a missile launcher.