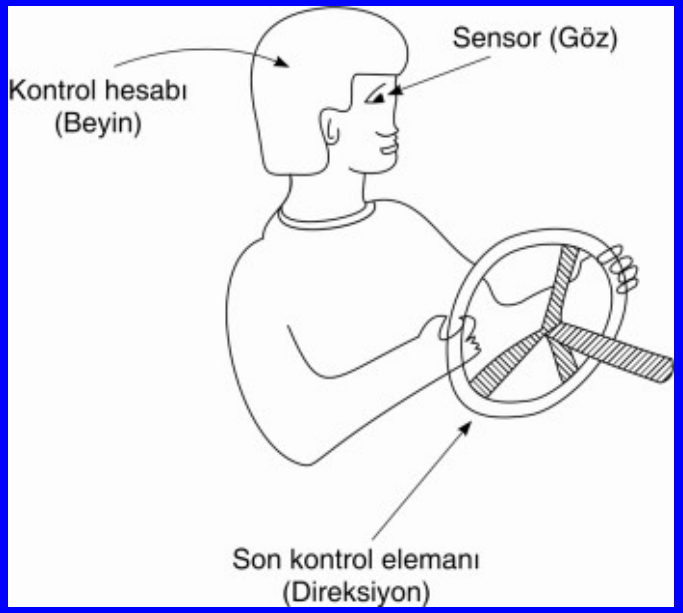
FDE404 PROCESS CONTROL

Process Control's Primary Goal

- To keep the process safely and effectively in the required operation conditions, while meeting the environmental and quality requirements.

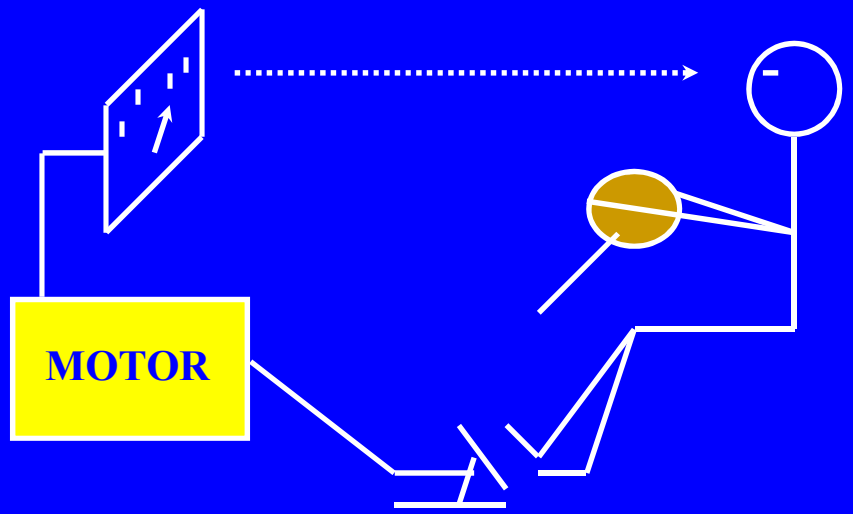
◆Process control example from our daily life activities (driving a car)

Person driving a car
Goal: To keep the car on a straight path

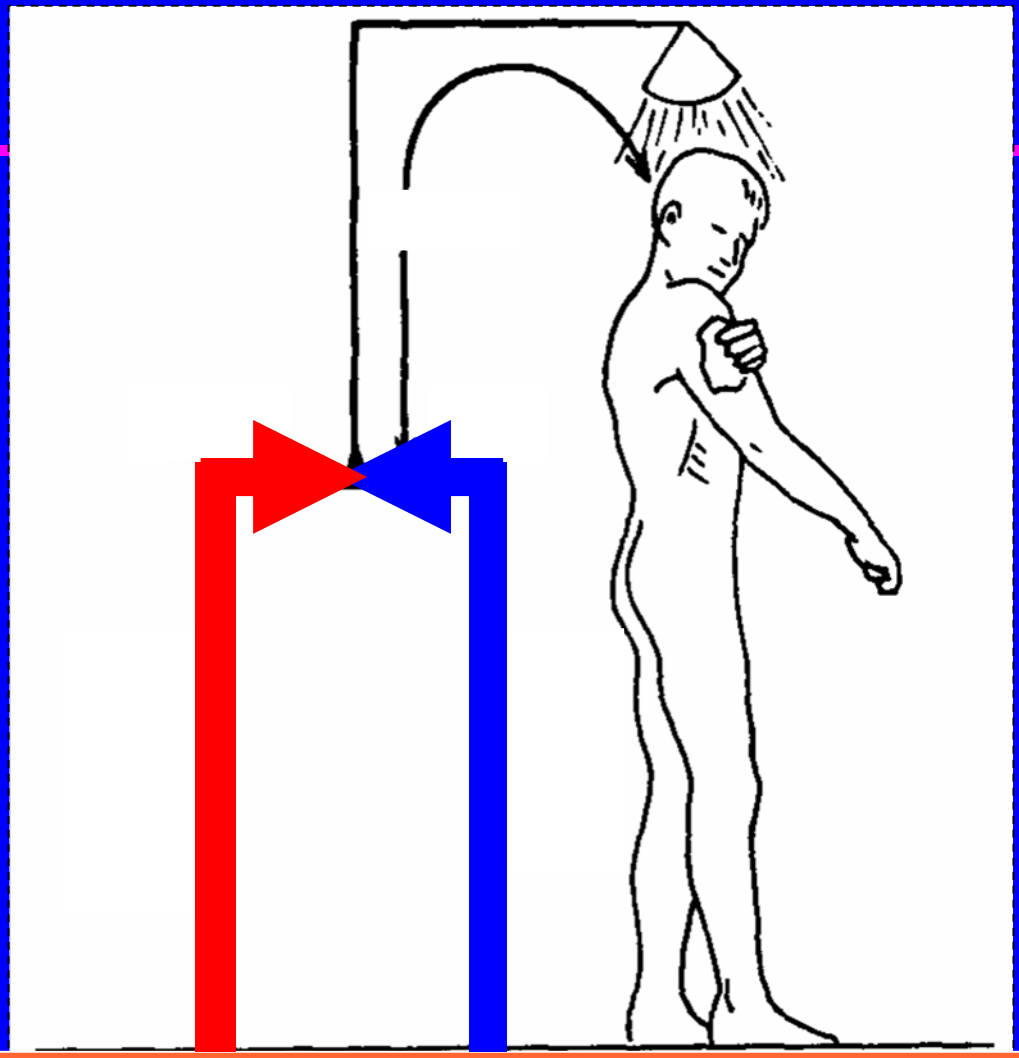


- Uses his/her eyes (sensors)
- Detects the position of the car
- Calculates the necessary changes that needs to be made to keep the car on the desired route.
- Rotates the wheel to keep the car on the desired route.
- By performing these functions continuously, the driver keeps the car on the desired route, despite any disturbances (such as holes and bends).

OR



Goal	**:**	90 km/h (Set point) to drive at constant speed
Controlled variable :		Speed
Manipulated variable:		Oil flow rate to engine *(position of the gas pedal)*
Disturbance:		Road conditions

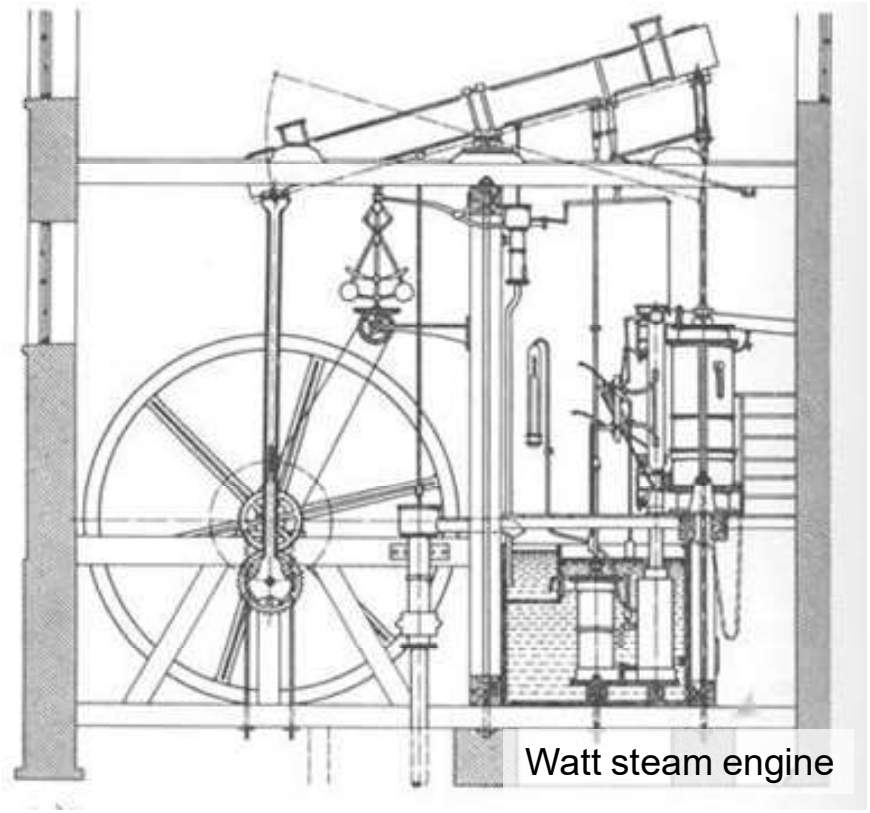


→ SHOWER SYSTEM

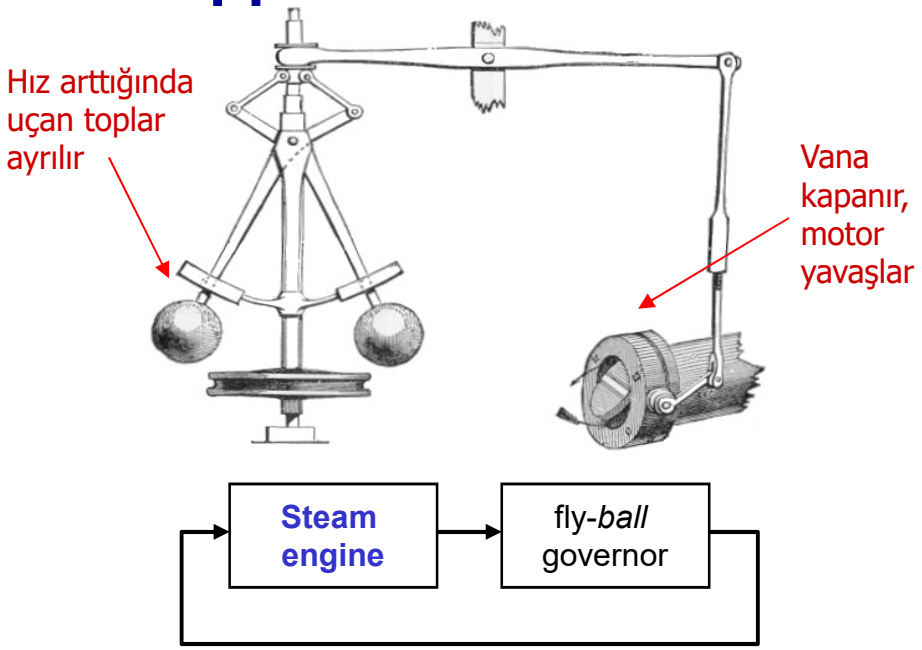
First Process Control Application

The fly-*ball* governor (1788)

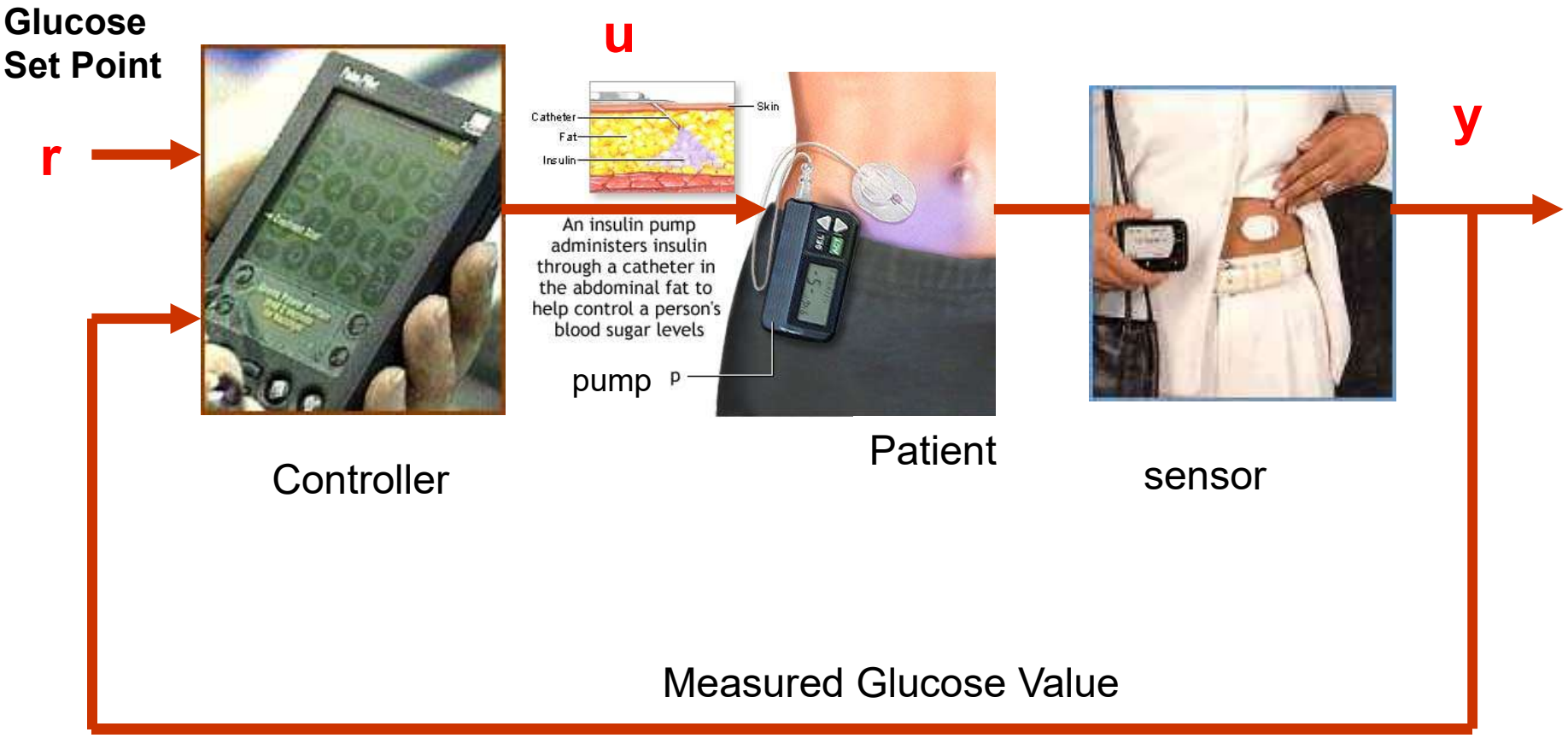
- Regulates the speed of a steam engine.
- Basis of industrial development.



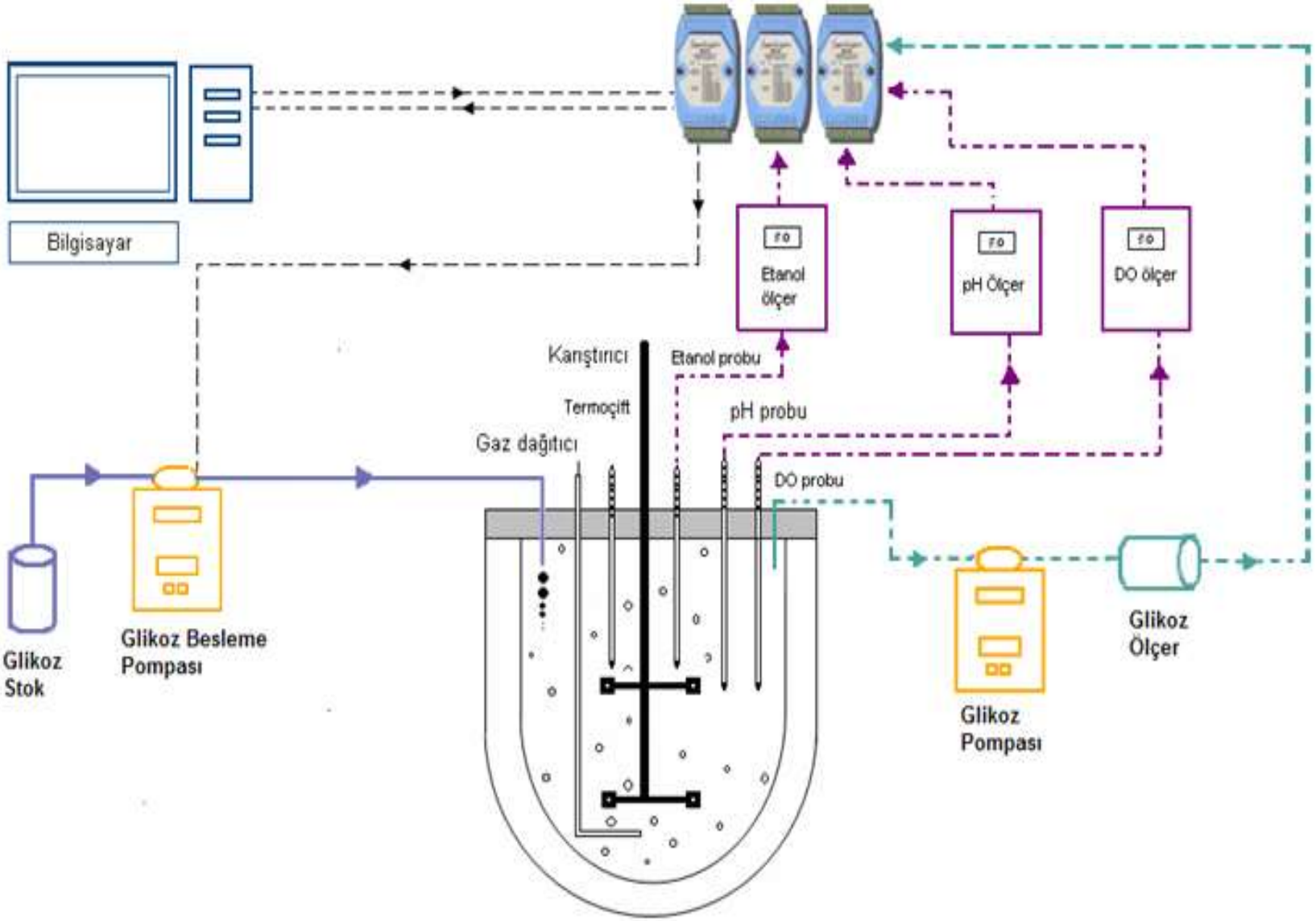
Watt steam engine



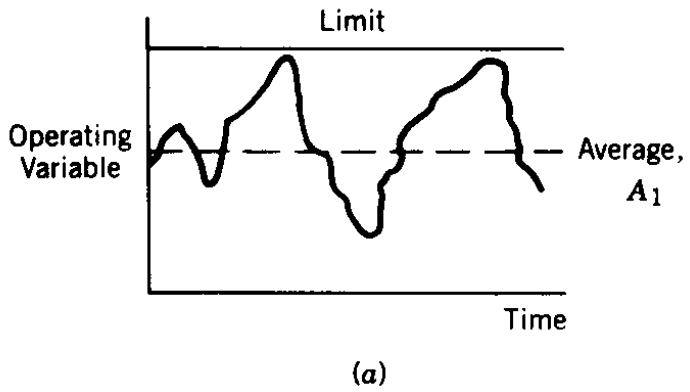
ARTIFICIAL PANCREAS



Example from food industry: Fermentor



➔Before and after process control



Before

After