Conference: Congreso Interdisciplinario de Energías Renovables - Mantenimiento Industrial - Mecatrónica e Informática

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Title: Análisis de las técnicas de estabilización del ángulo de inclinación y rotación de un monocóptero con aplicaciones industriales

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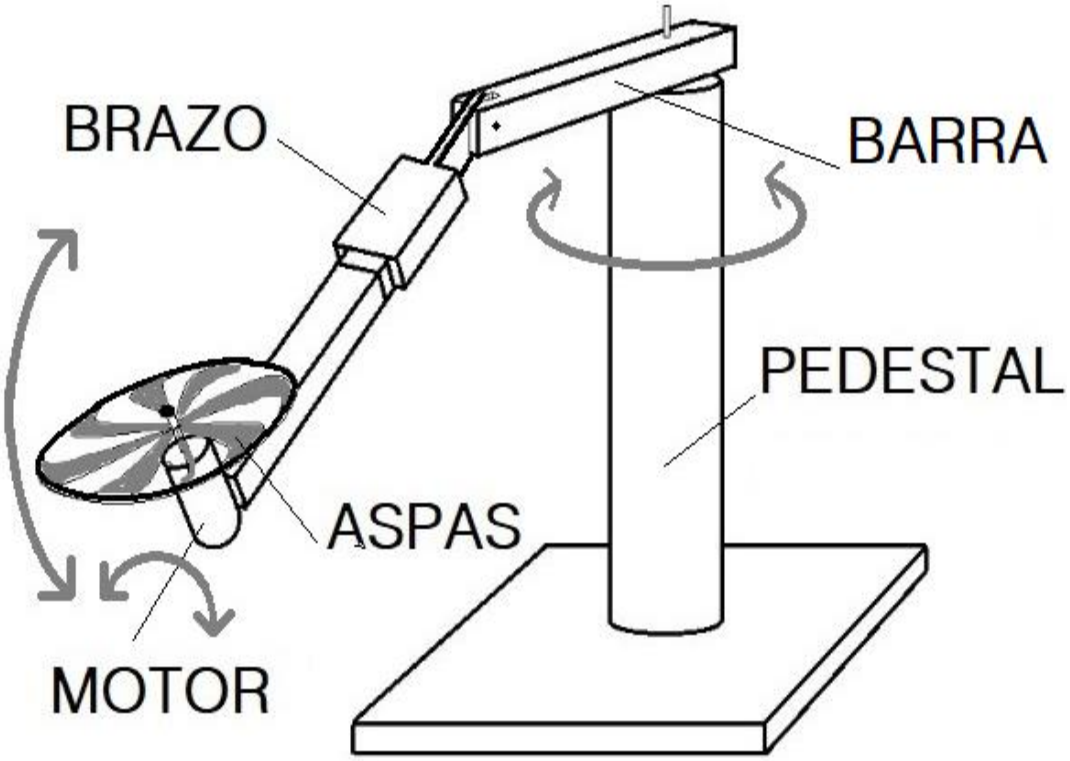
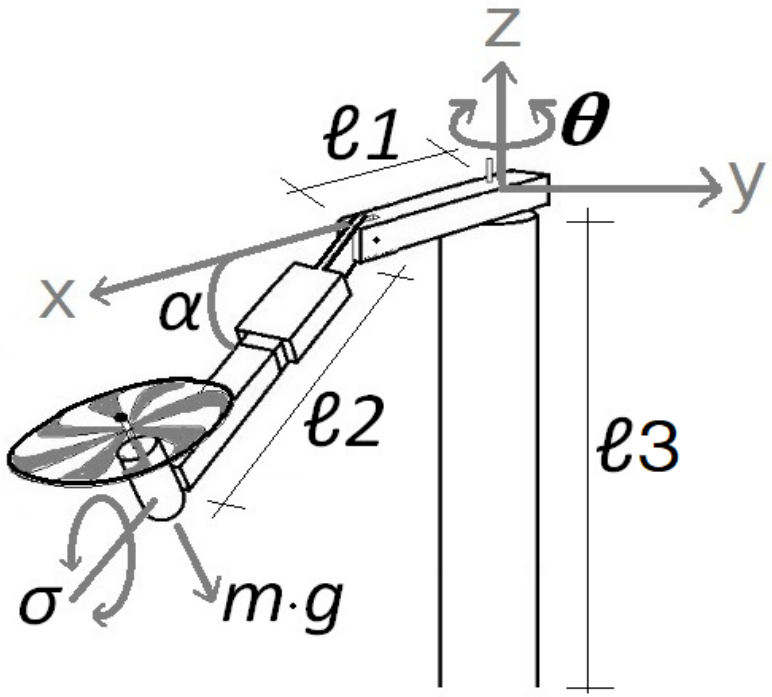
- ¿Qué es un monocóptero?

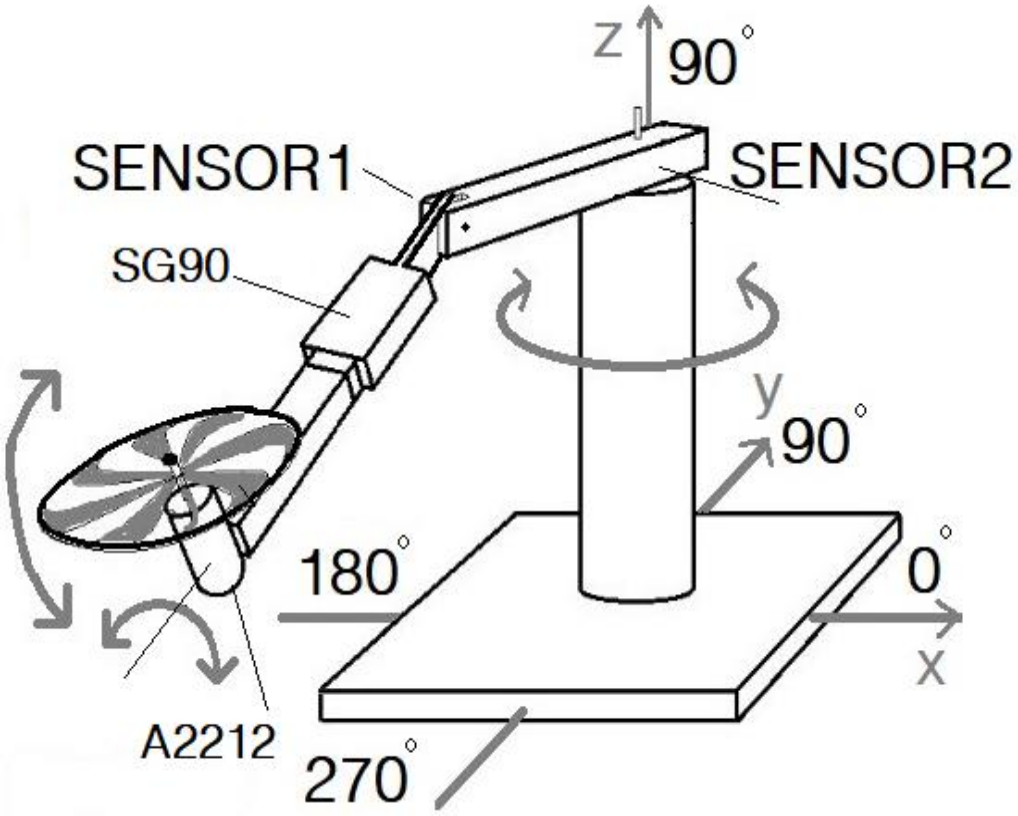


- Descripción matemática del sistema dinámico



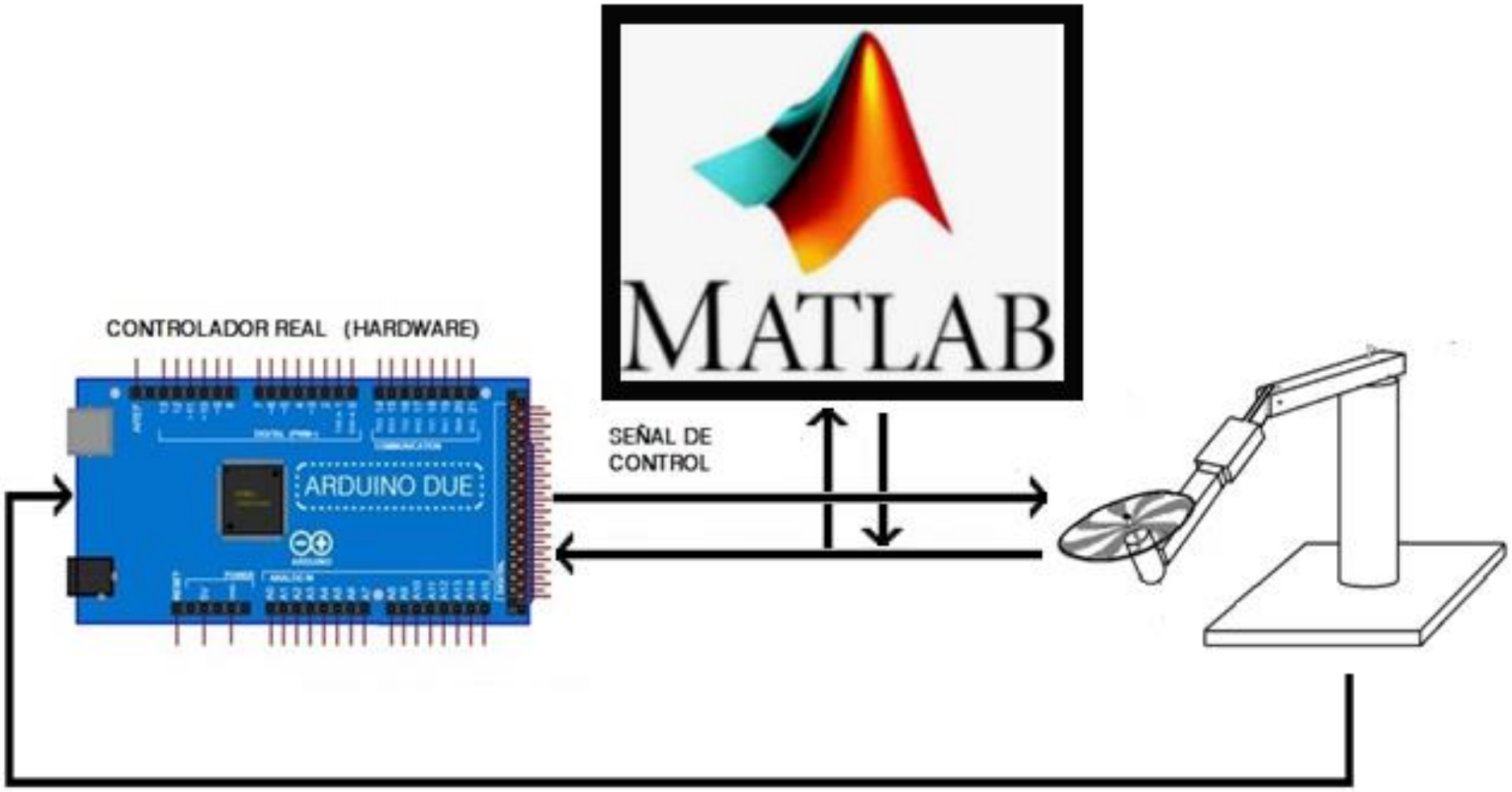
- Variables a controlar:
  - Movimiento angular.
  - Movimiento rotacional.

Implementación del sistema dinámico

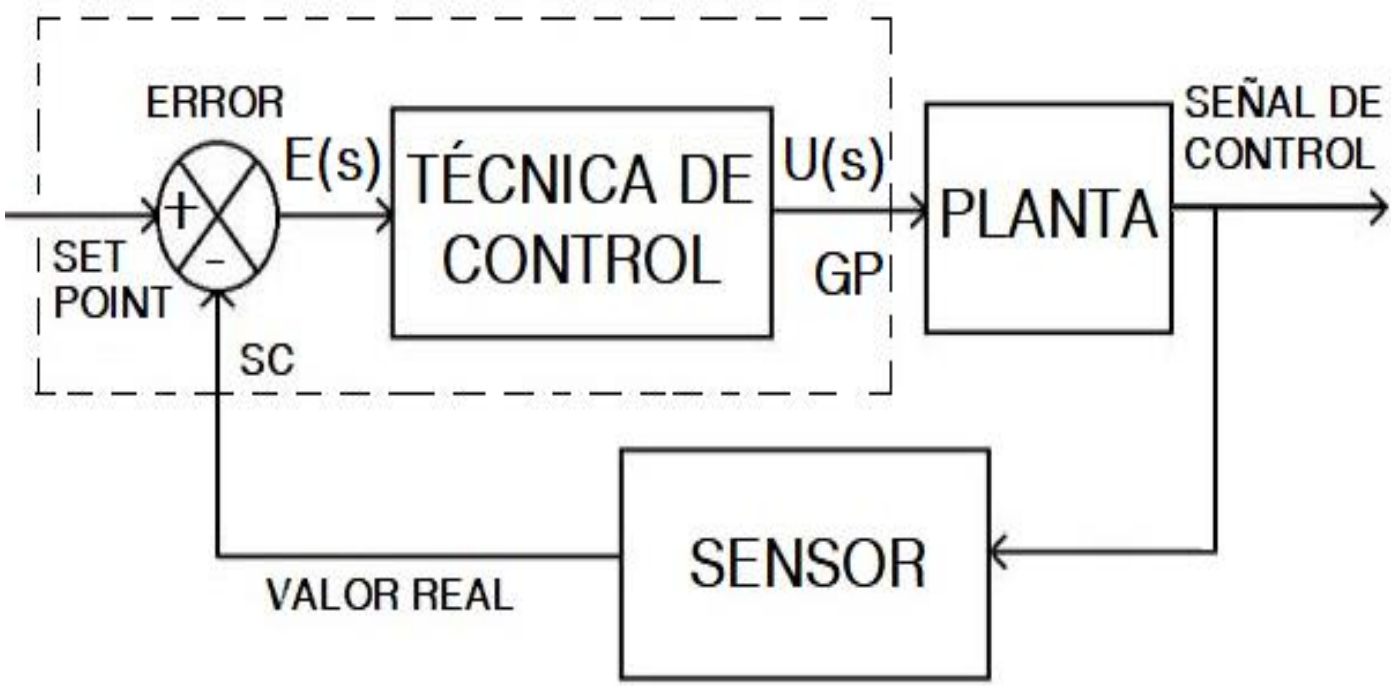


- Comunicación de elementos de control:

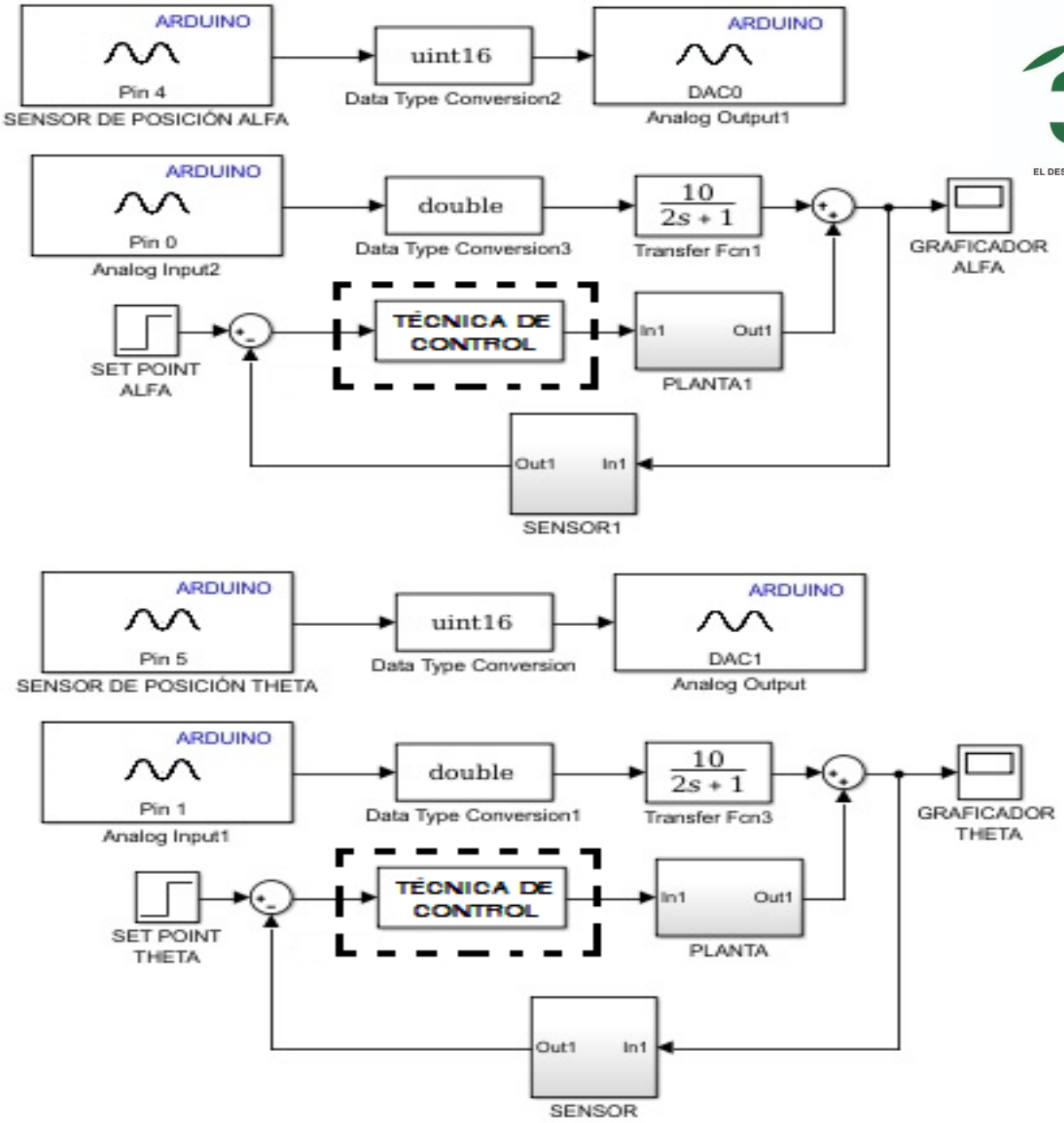
ARDUINO®-SIMULINK®


MATLAB
CONTROLADOR REAL (HARDWARE)
ARDUINO DUE
SEÑAL DE CONTROL

•Teoría de control



SIMULINK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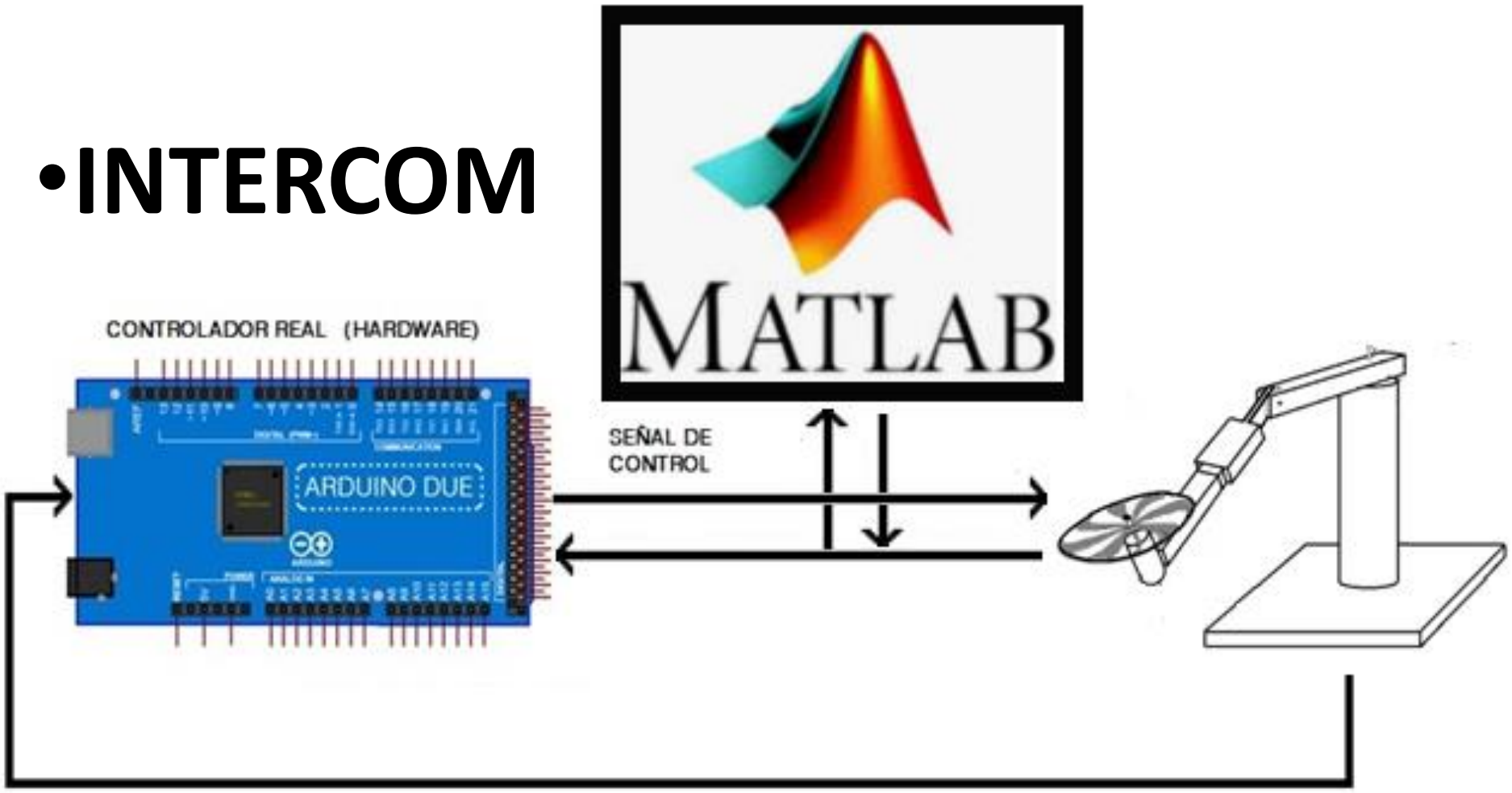
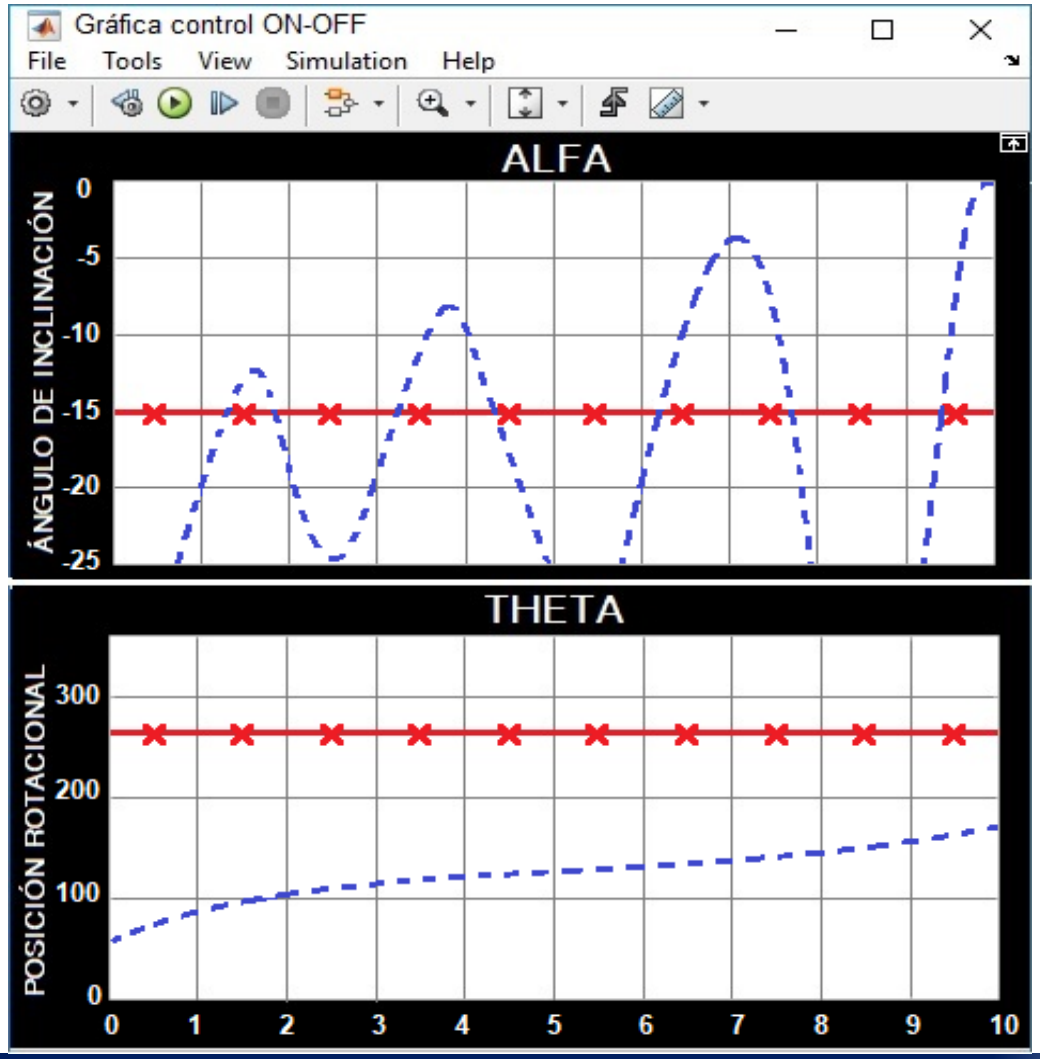
ARDUINO
DAC0
Analog Output1
ARDUINO
Pin 0
Analog Input2
double
Data Type Conversion3
10
2s + 1
Transfer Fcn1
GRAFICADOR ALFA
SET POINT ALFA
TÉCNICA DE CONTROL
In1
Out1
PLANTA1
Out1
In1
SENSOR1
ARDUINO
Pin 5
SENSOR DE POSICIÓN THETA
uint16
Data Type Conversion
ARDUINO
DAC1
Analog Output
ARDUINO
Pin 1
Analog Input1
double
Data Type Conversion1
10
2s + 1
Transfer Fcn3
GRAFICADOR THETA
SET POINT THETA
TÉCNICA DE CONTROL
In1
Out1
PLANTA
Out1
In1
SENSOR

- **INTERCOM**

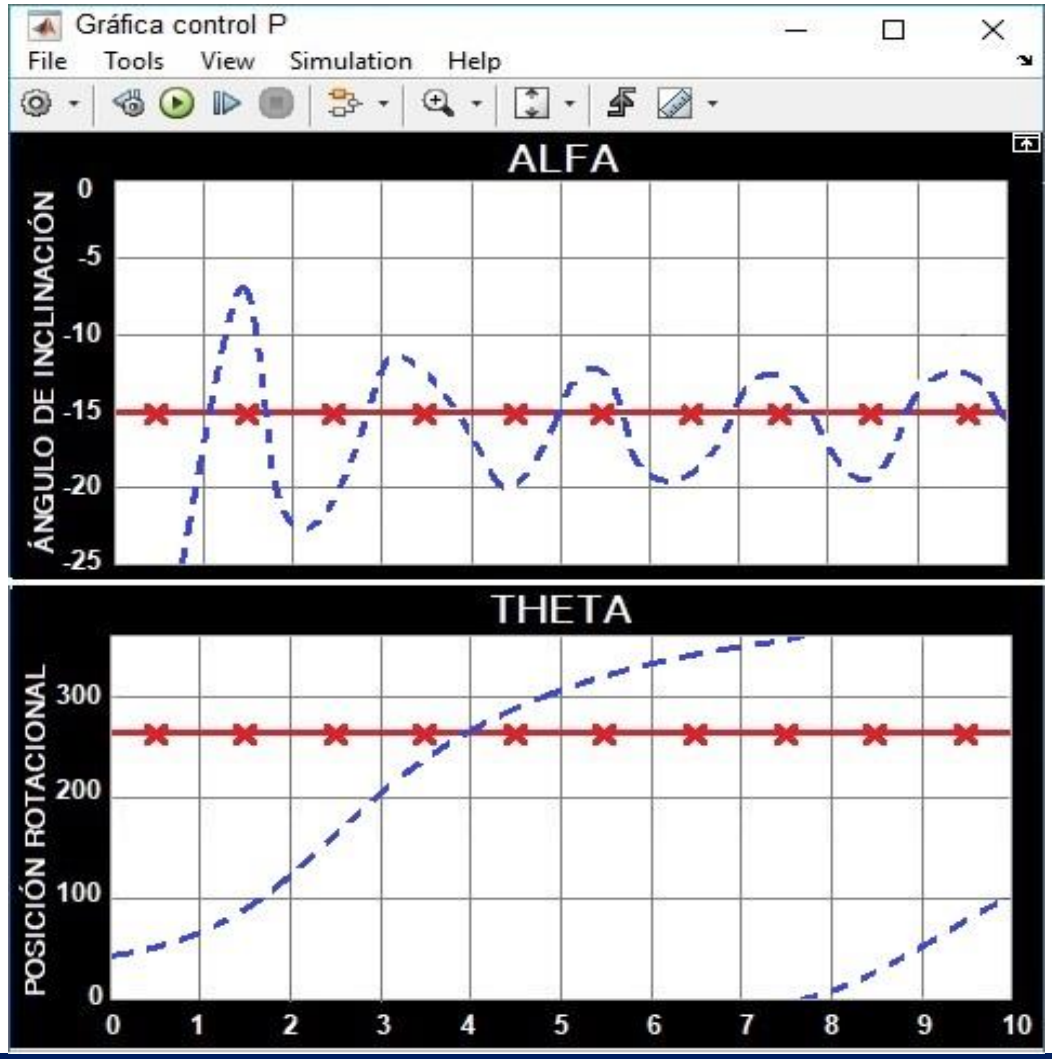

MATLAB
CONTROLADOR REAL (HARDWARE)
ARDUINO DUE
SEÑAL DE CONTROL

•RESULTADOS

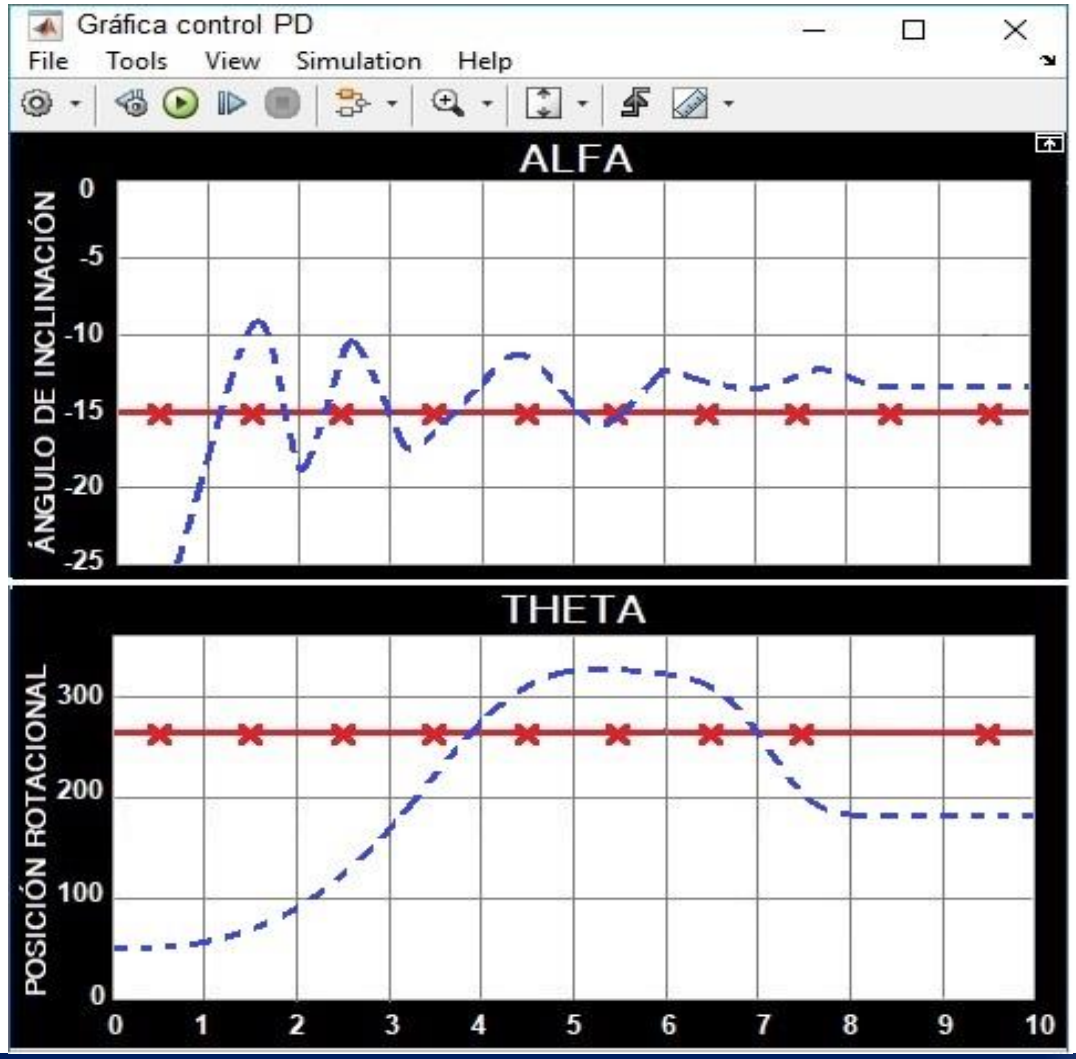
•CONTROL ON-OFF



•CONTROL P


Gráfica control P
File Tools View Simulation Help
ALFA
ÁNGULO DE INCLINACIÓN
0
-5
-10
-15
-20
-25
THETA
POSICIÓN ROTACIONAL
300
200
100
0
0 1 2 3 4 5 6 7 8 9 10

•CONTROL PD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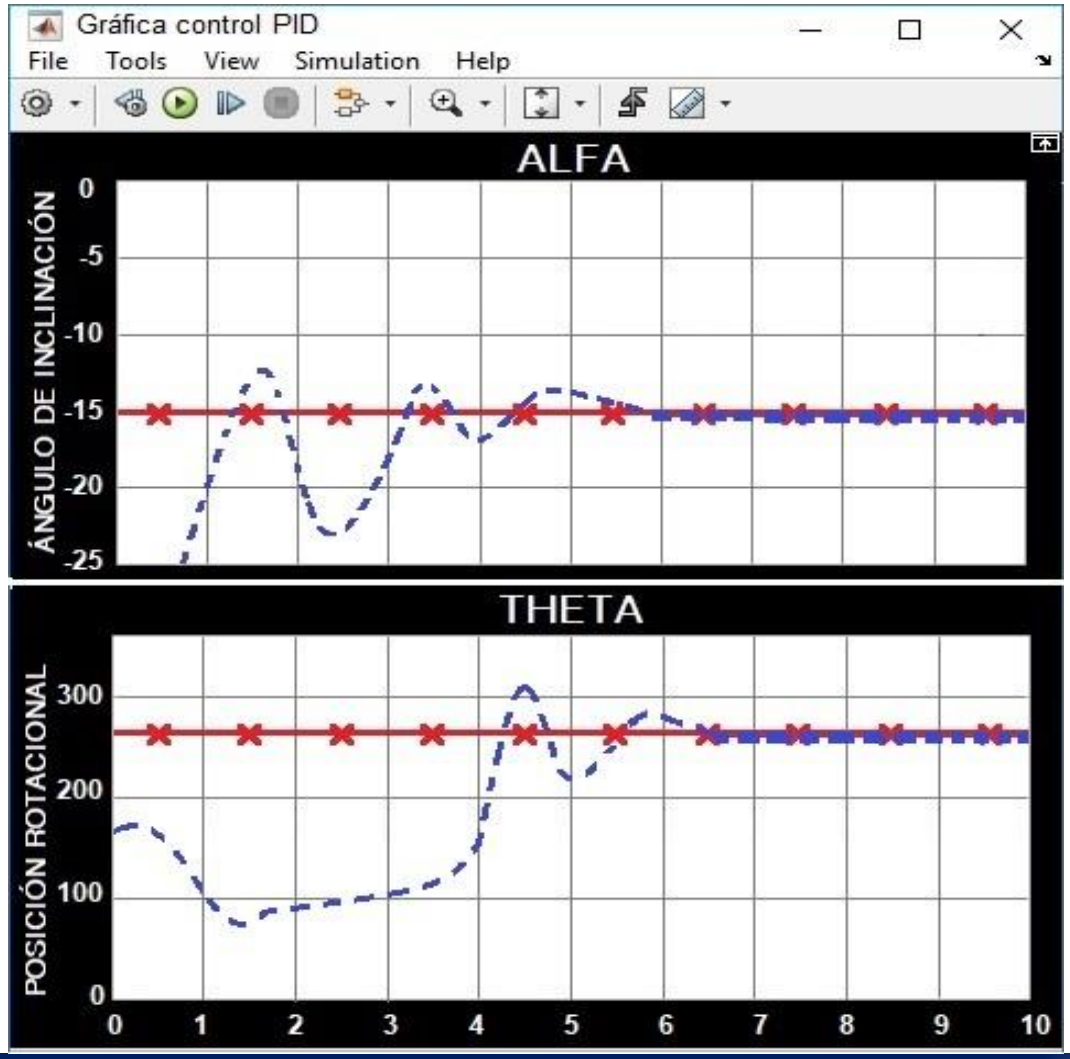
-5
-10
-15
-20
-25
THETA
POSICIÓN ROTACIONAL
300
200
100
0
0 1 2 3 4 5 6 7 8 9 10

•CONTROL PID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View
Simulation
Help
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0
-5
-10
-15
-20
-25
THETA
POSICIÓN ROTACIONAL
300
200
100
0
0
1
2
3
4
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6
7
8
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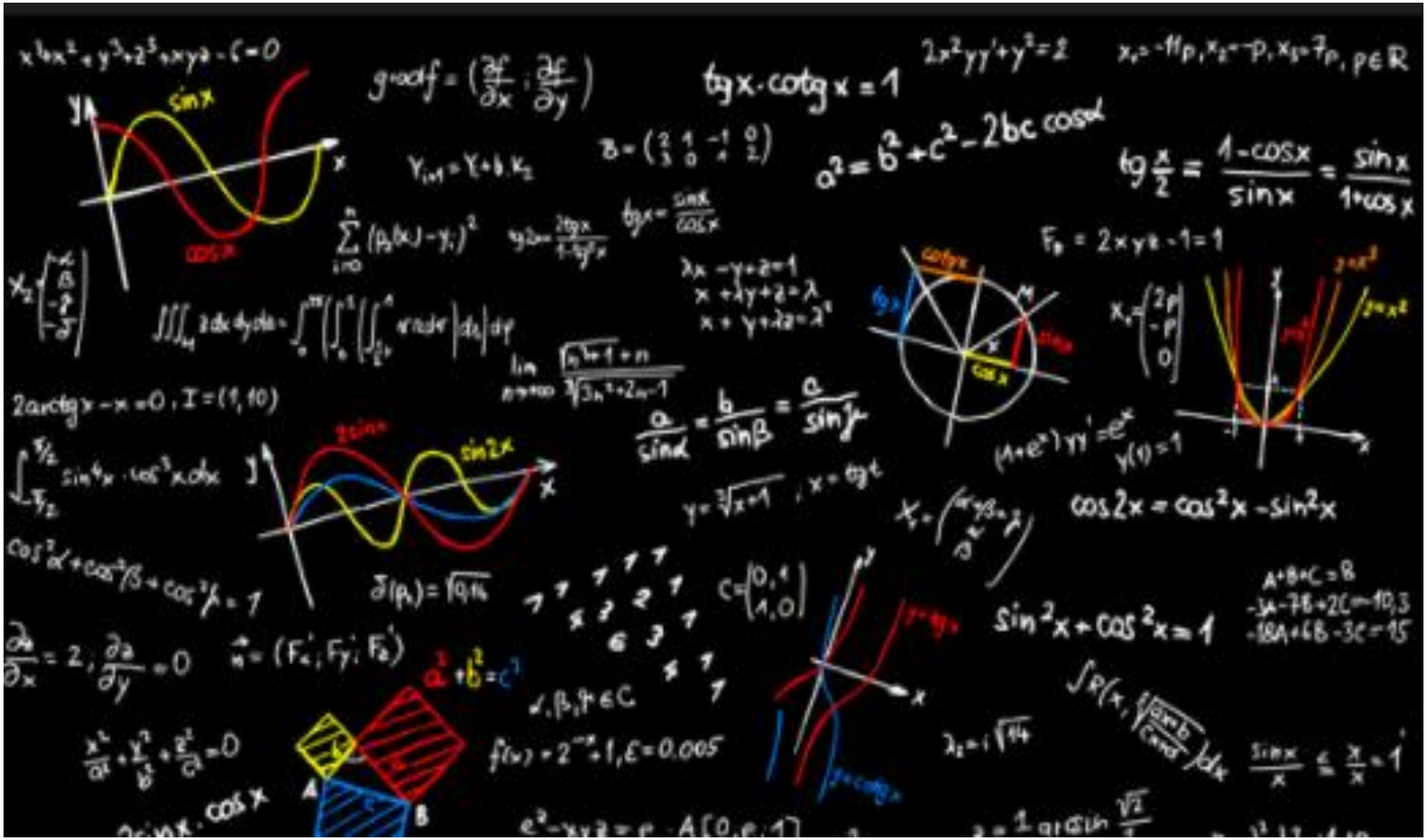
10

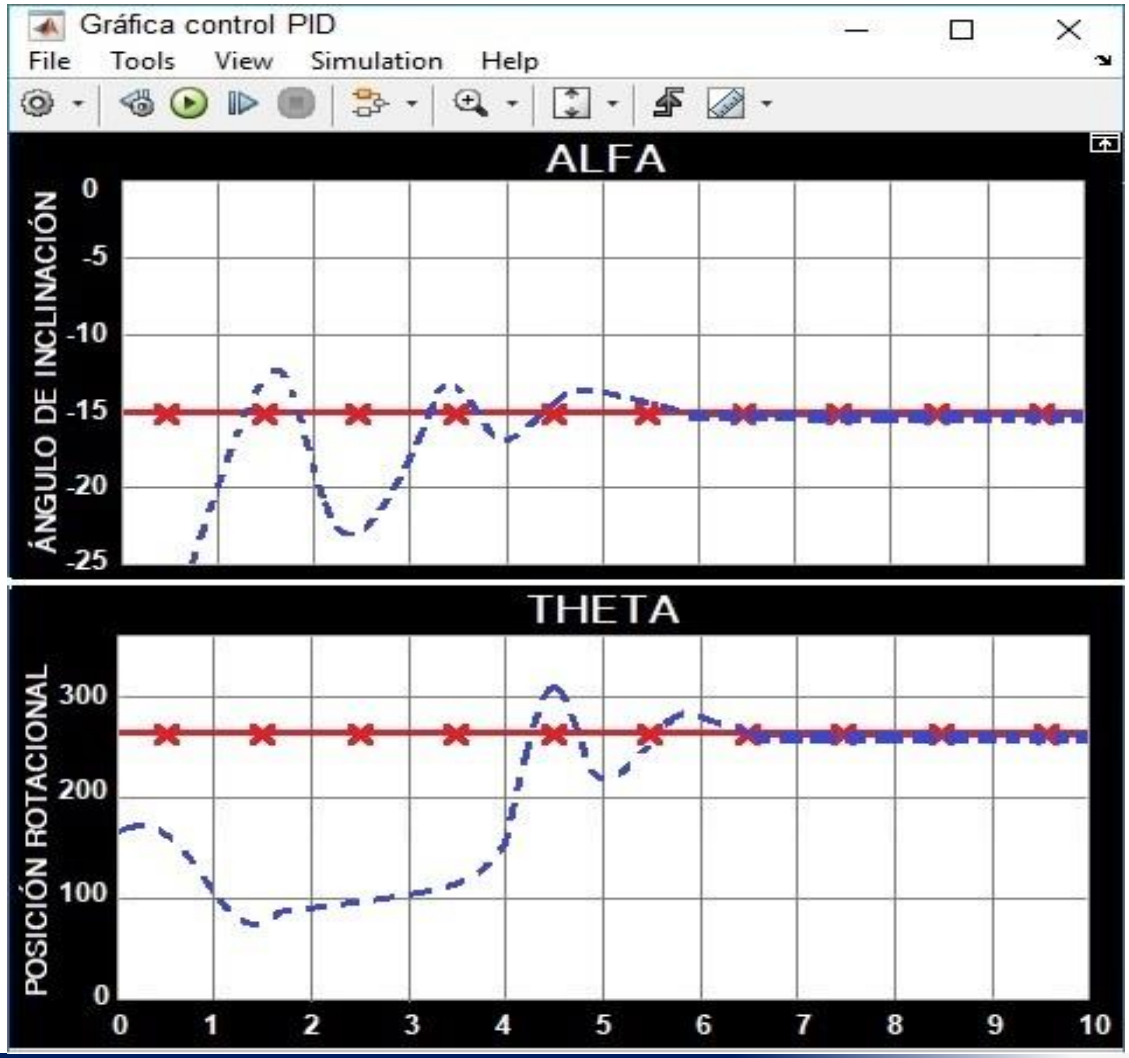
- ¿Qué significa esto?

•Cálculos físicos y matemáticos



• CONTROL DEL SISTEMA

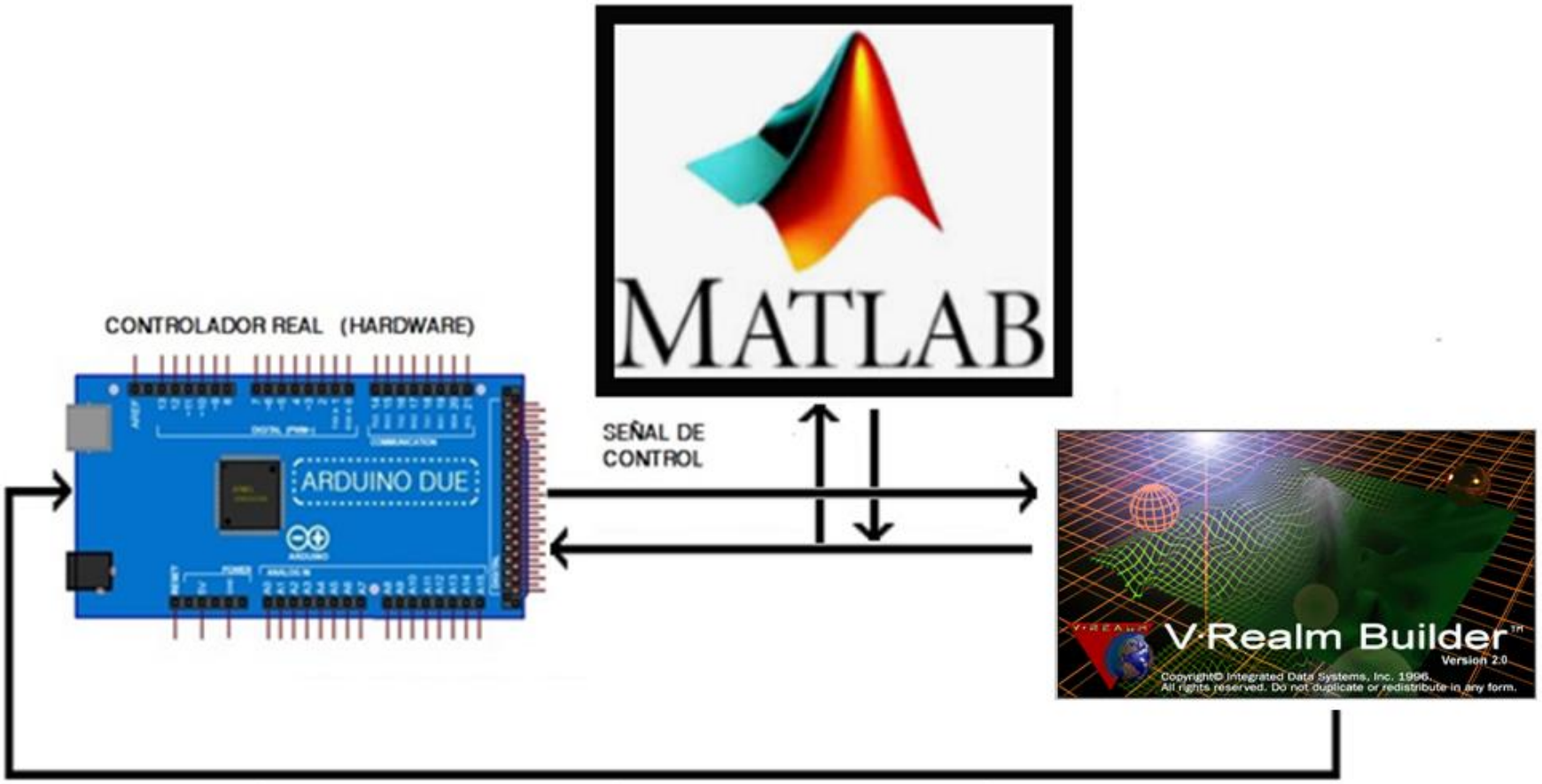
- **Interpretación de RESULTADOS**



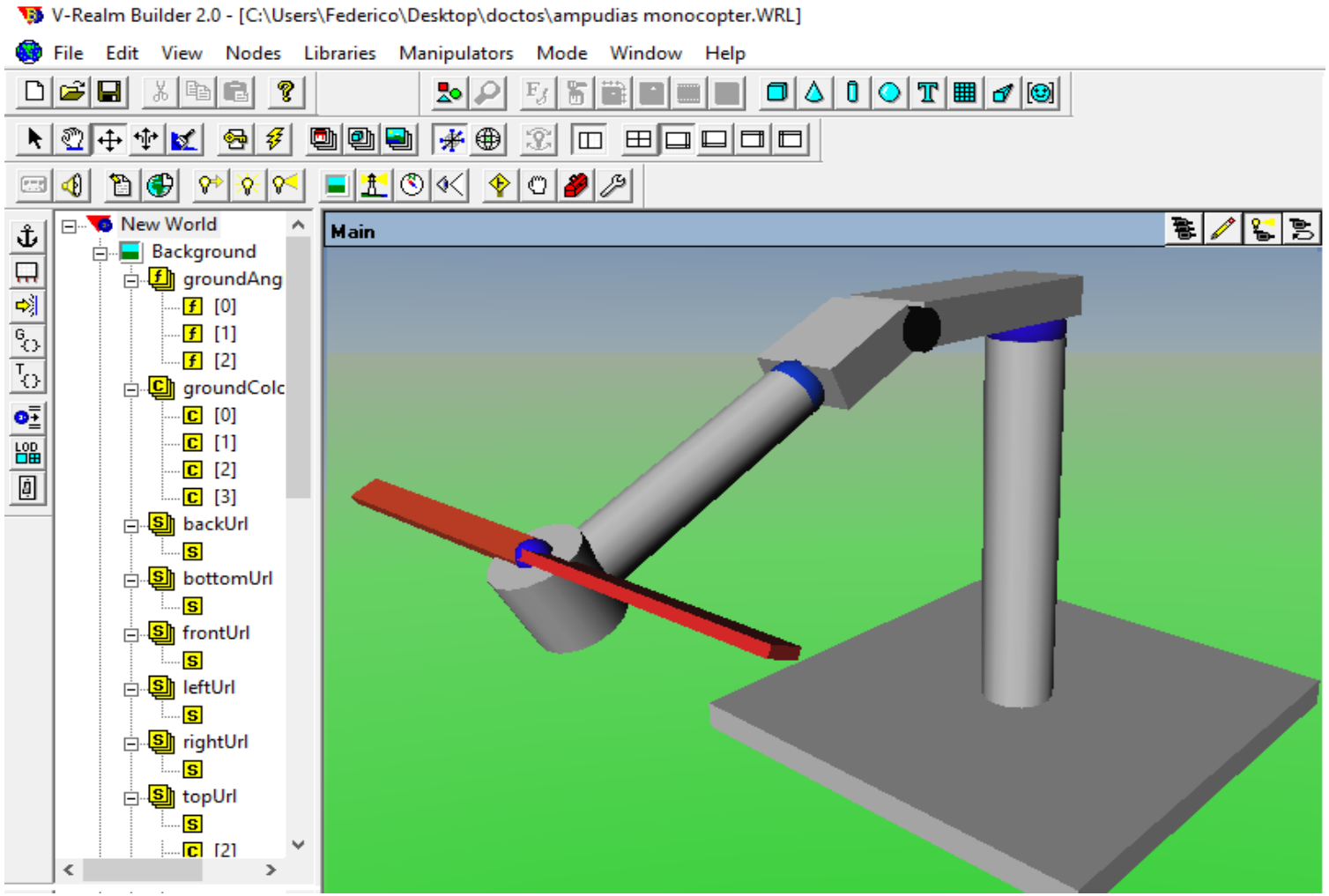
DESARROLLO PARALELO

•REAL vs VIRTUAL

•REAL vs VIRTUAL



•V-REALM®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groundAng
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[2]
groundColc
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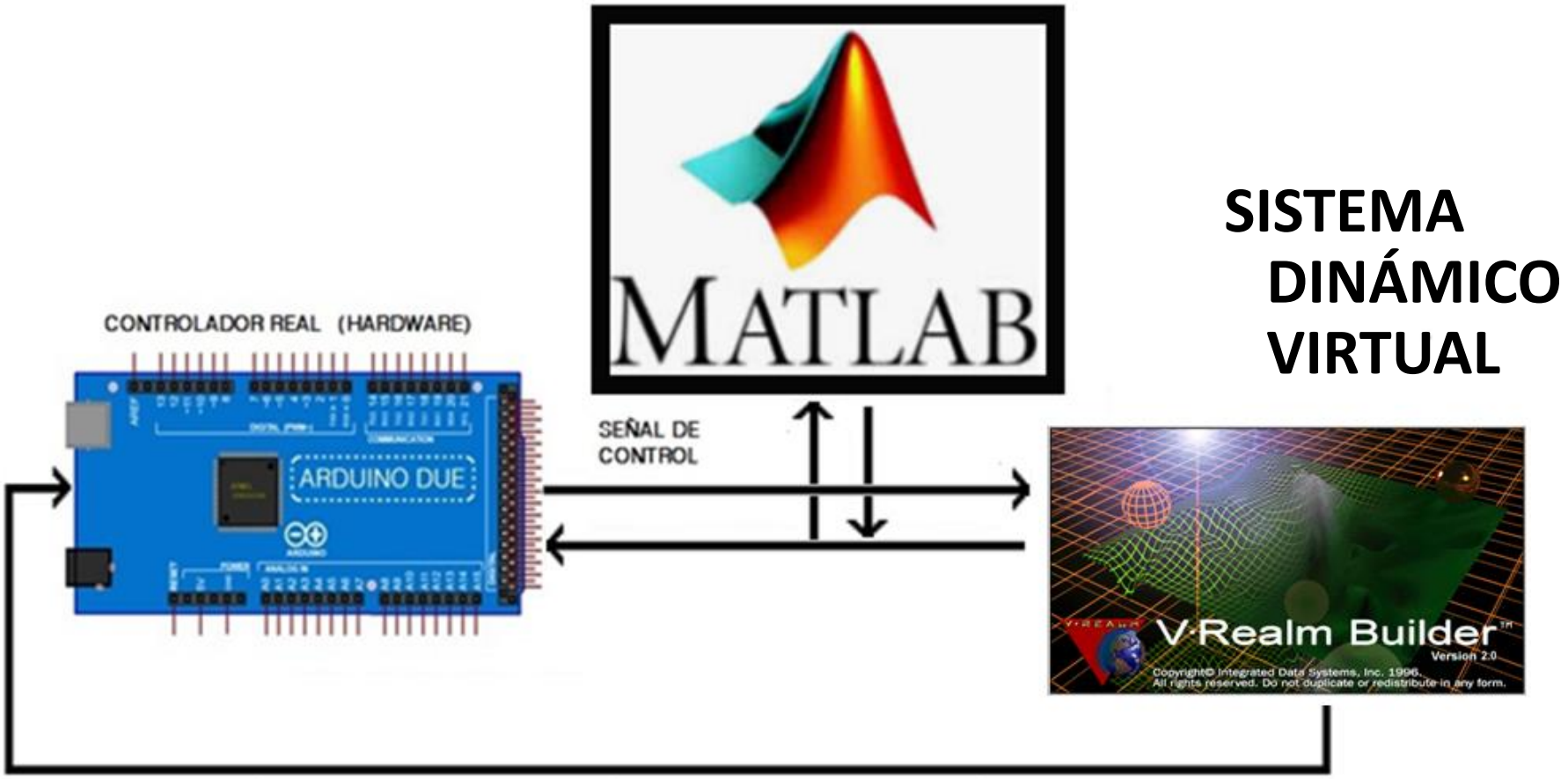
backUrl
bottomUrl
frontUrl
leftUrl
rightUrl
topUrl
[2]
Main

•REAL vs VIRTUAL

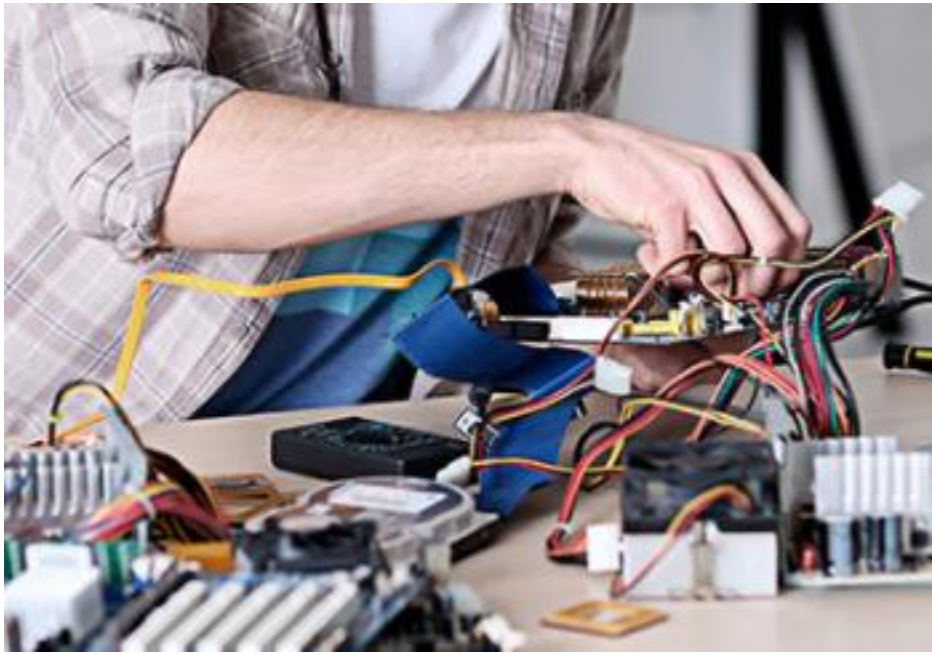


SISTEMA DINÁMICO VIRTUAL

CONTEXTO

•ACERCAMIENTO

+



•OBJETIVO


Innovación
Desarrollo y mejoras
Repetibilidad de experimentos
DATOS / INFORMACIÓN

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