DSP Processor Based DATA ACQUISITION SYSTEM [VDAS-02]

- DUAL CORE 32 bit DSP Processor BASED Data Acquisition System is developed for advanced closed-Process loop control applications for Process Control Trainers. It is also focused for students to learn the multi-processor architecture and the inter processor communication mechanisms.

- Many Control Algorithm like

ON/OFF Control | **PID Control** | **Fuzzy Logic Control** | **Reinforcement Learning Control** | **Model Predictive Control**

can be implemented using this powerful 32 bit DSP Processor. A choice of Digital Filtering for each channel is an added advantage for the Data Acquisition.

MATLAB Simulink Based | **Digital Filtering for each Channel**

Features:

- **Dual- Core 32-bit Delfino fixed point Processor : TMS320F377D Based**
- **Operating Speed: 200MHz (For each core) & 32-bit floating-point unit (FPU)**
- **1MB (512KW) flash memory with ECC, 204KB (102KW) of SRAM**
- **8 Channels (16-bit/12-bit at 1.1 MSPS/3.5 MSPS) Successive Approximation ADCs**
- **Enhanced Capture Inputs**

ON Board Features:

- **20 × 4 Alphanumeric LCD , Quadrature Encoder Interface**
- **Opto-isolated USB Serial Interface**
- **Compatible with MATLAB SIMULINK**
- **8 Digital Input & 8 Digital Output**
- **Two channel current to voltage converter provided**
- **Two channel voltage to current converter provided**
- **Optional additional 2 Channel Current to Voltage. and 2 Channel Voltage to Current.**

- **In-Built IC regulated power supply**
- **ADC/DAC signals and I/O lines are terminated at a 25 pin 'D' Male connector**

16/12 bit ADC & 12 bit DAC

- **Analog Input : 8 Channel**
- **Resolution & Rate : 16 bit @ 1.1MSPS &2 bit @ 3.5MSPS**
- **Range : 0 to 5V**

- **Analog output : 2 Channel**
- **Analog Output (Optional) : 2 Channel**
- **Resolution : 12 bit**
- **Range : 0 to 5V**

I/V and V/I converter

- No. of I/V : 2 Channel
- Input range : (4-20)mA
- Output Range : (0-5)V
- No. of V/I : 2 Channel
- Input range : (0-5)V
- Output Range : (4-20)mA

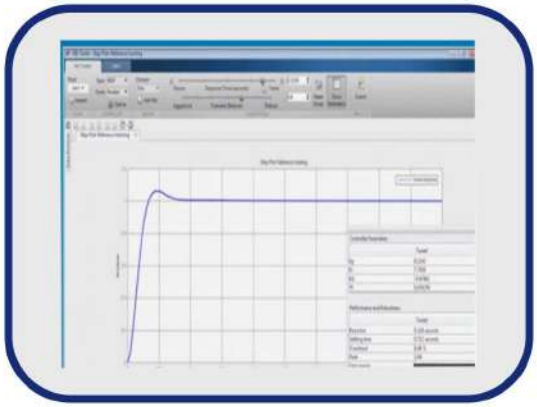
Two channel of ADC & DAC is configured as I/V & V/I converter

I/V and V/I converter (Optional)

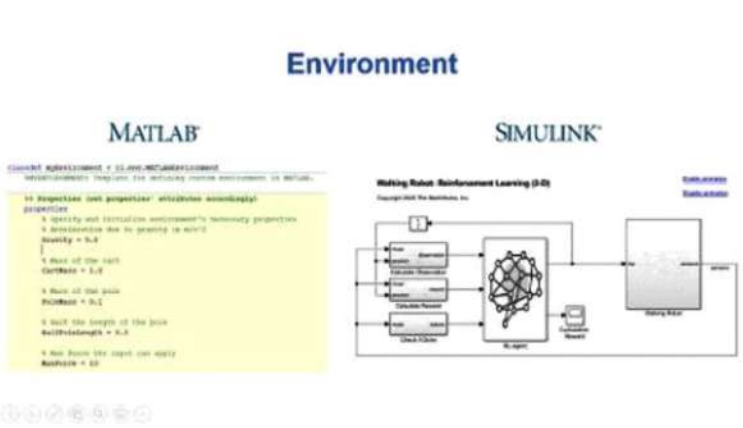
- No. of I/V : 2 Channel
- Input range : (4-20)mA
- Output Range : (0-5)V
- No. of V/I : 2 Channel
- Input range : (0-5)V
- Output Range : (4-20)mA

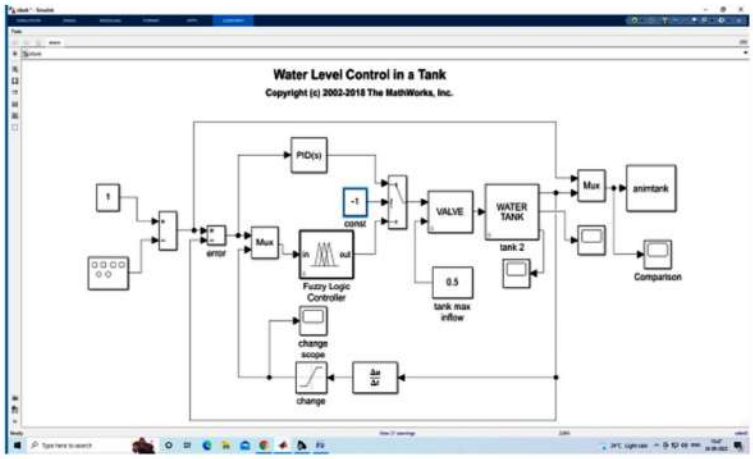
- **Model Based Software developed using MATLAB-SIMULINK. Good GUI support is provided which helps in learning the principles of process control. Different experiments can easily be selected, studied and conducted. The software is easy to use, flexible & with features like Data access, trend plots, Data logging, Printing, Data export.**

- **You can validate your design by verifying rise time, overshoot, settling time, gain and phase margins, and other requirements**

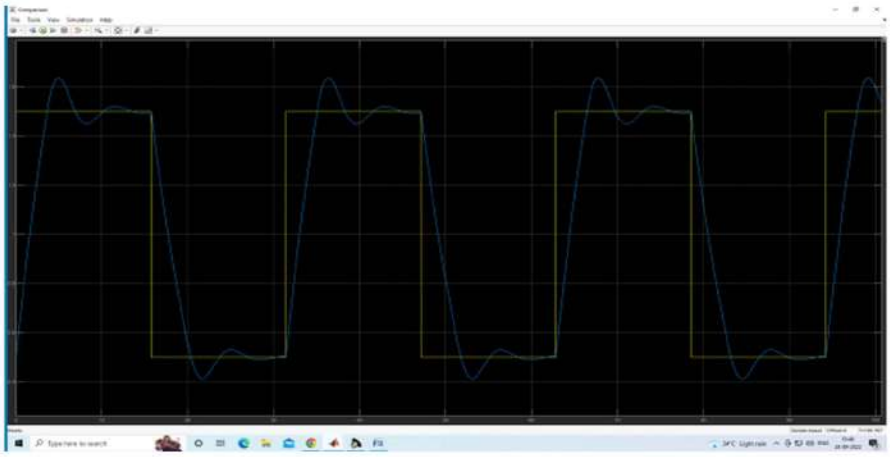


On/off control, Pid Controland Optional Fuzzy Logic Control, Reinforcement Learning Control and Model Predictive Control



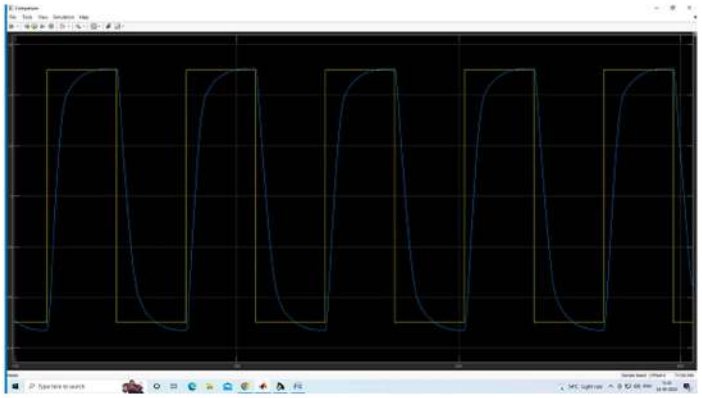


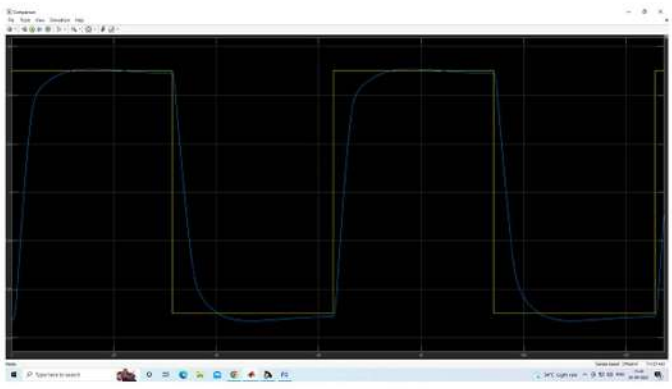
Waveform for PID response of water tank level control



Wave forms for fuzzy logic water level control

Against 2 Set point & actual water level





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