

Utilization of Labview in MIMO Control for Multiple Tanks Level Measurement System

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Abstract: The modernisation of the existing device of facts acquisition machine in procedure manage is upgraded to the recent technologies for running the technique station. This paper offers the perspectives on the prevailing 3 tank structures installation is used for controlling the levels of two interacting systems. Liquid degree control has a completely big software domain in enterprise circulate over; the 3 tank system is one of the most broadly used experiments in laboratory & studies institutes. The measurement of business technique level parameter is one of the wonderful importances in manner manage. the extent of liquids may additionally have an effect on each the stress and fee of float in and out of the tank. subsequently, the excellent can be affected. automated manage applications would require control indicators for operation of actuation. stage transmitter is used to measure level of the tank. in this gadget the level in the process tank is sensed the usage of a degree transmitter and the corresponding present day output being measured and managed with the aid of the use of statistics acquisition gadget. [1],[3],[5]

Keywords : Closed loop, Cascade control, LabView, Virtual Instrumentation

I. INTRODUCTION

Industrial control systems are used in equipment or machinery for industrial production or control. Two types of control systems are common, open loop control systems and closed loop control systems. There are two common classes of control system, open loop control systems and closed loop control systems. In open circle control framework yield is created dependent on information sources. In shut circle control frameworks current yield is contemplated and rectifications are made dependent on criticism. [2],[4],[6] A closed loop system is also called a feedback control system. Procedure control is the demonstration of controlling a last controller component to change the controlled variable to keep up the procedure variable at an ideal set point. The controlled variable is a proportion of asset being encouraged into the procedure. Final control element is the device that changes the value of the manipulated variable. The controller output is the signal from the controller to the final control element. The process variable is the measure of the process output that changes in response to changes in the manipulated

variable. The set point is the value at which we wish to maintain the process variable at.

II. PROPOSED EXPERIMENTAL SYSTEM

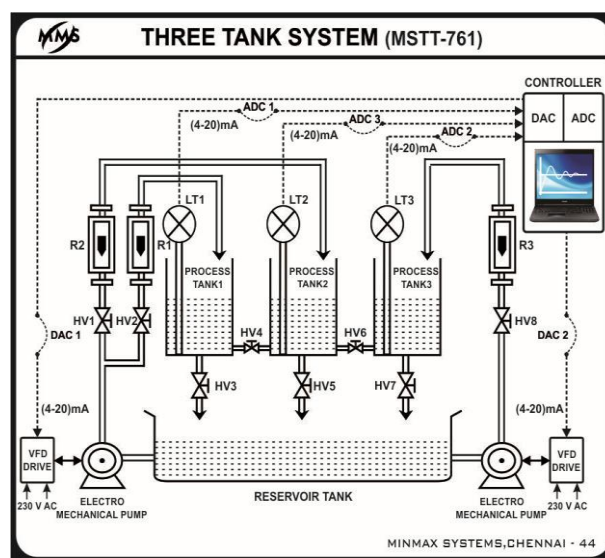


Figure.1 Proposed system in real time

This the experimental device used the Closed loop block diagram is shown within the Labview screen advanced according to the proposed system. In cascade there are two loops one the grasp whose set point does now not changes so often whereas the output of the master loop is going to be the set factor of the slave loop consequently the designing of slave loop controller performs a vital position in bringing the 2 tanks to the specified set point.

DAQ: The statistics acquisition device which acquires all of the facts from the actual time three tank system station which is used to interface all the analog inputs from the actual time procedure and processed by the controller designed for the stableness of the proposed device and the controller output is given to the very last control element through DAC and the cutting-edge to pressure converter.

Cascade control: The cascade analyser block diagram is designed as shown inside the figure; the cascade control is basically have primary and secondary loops whose controller are master and slave controller. grasp's set factor does now not range swiftly in which because the slave set factor varies hastily. notwithstanding variations inside the set point the controller design is a tedious procedure. [7],[9],[11]

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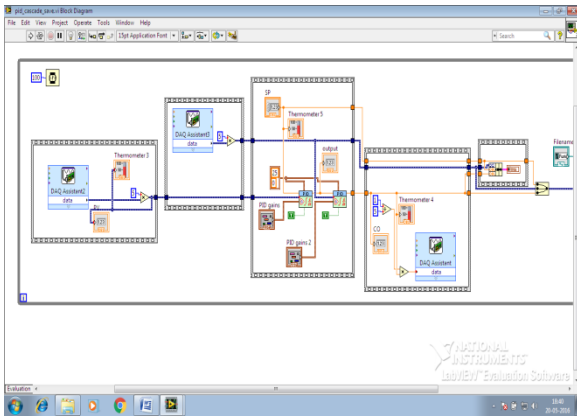


Figure2. Schematic of Cascade control system

After building the block diagram in LabView the constantly run operation is selected within the record menu. The Cascade connection may be viewed from the Labview window panel as shown in fig 3. [8],[10] ,[12]

The final manage detail is the pneumatic manage valve. This manage valve is managed via the manipulated variable given from the controller through modern-day to strain converter. [13],[15],[17]

III. RESULTS AND CONCLUSIONS

The process data is tabulated using Excel format and the process running window also shows the level of the two tanks virtually also as shown in the figure. [14],[16],[18]

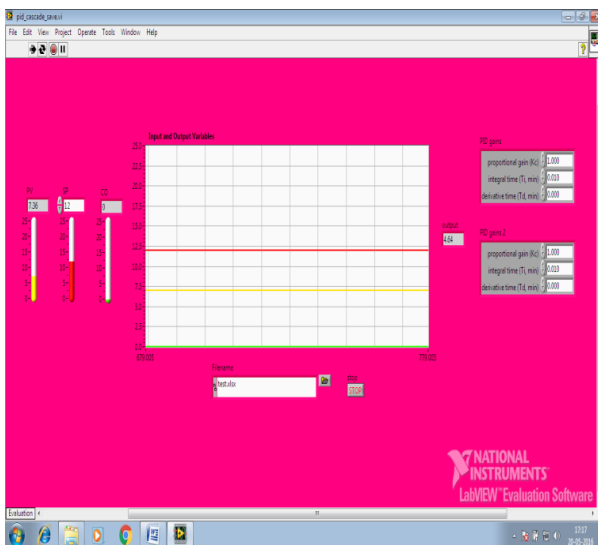


Figure.3Window in virtual set up using LabView

Three tank system consists of

Time	Setpoint	Level 1	Level 2	Level 3
161 17:13:03	20	7.011855	0	
162 17:13:03	20	7.011855	0	
163 17:13:03	20	7.011855	0	
164 17:13:04	20	7.011855	0	
165 17:13:04	20	7.011855	0	
166 17:13:04	20	7.011855	0	
167 17:13:04	20	7.011855	0	
168 17:13:05	20	7.011855	0	
169 17:13:05	20	7.011855	0	
170 17:13:05	20	7.011855	0	
171 17:13:06	20	7.011855	0	
172 17:13:06	20	7.011855	0	
173 17:13:06	20	7.011855	0	
174 17:13:06	20	7.011855	0	
175 17:13:07	20	7.011855	0	
176 17:13:07	20	7.011855	0	
177 17:13:07	20	7.011855	0	
178 17:13:07	20	7.011855	0	
179 17:13:08	20	7.011855	0	
180 17:13:08	20	7.011855	0	
181 17:13:08	20	7.011855	0	
182 17:13:09	20	7.011855	0	
183 17:13:09	20	7.011855	0	
184 17:13:09	20	7.011855	0	
185 17:13:09	20	7.011855	0	
186 17:13:10	20	7.011855	0	

Figure 4 Excel Data format for the cascade Control System

IV. CONCLUSION

Hereby we can conclude that the existing systems with convention methodologies and programming languages can be replaced with trending software's and technologies by just comparing and applying the algorithms of related process control. [19],[20],[21]

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