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Experimental Setup and Analysis of Data Logging Software Specifications

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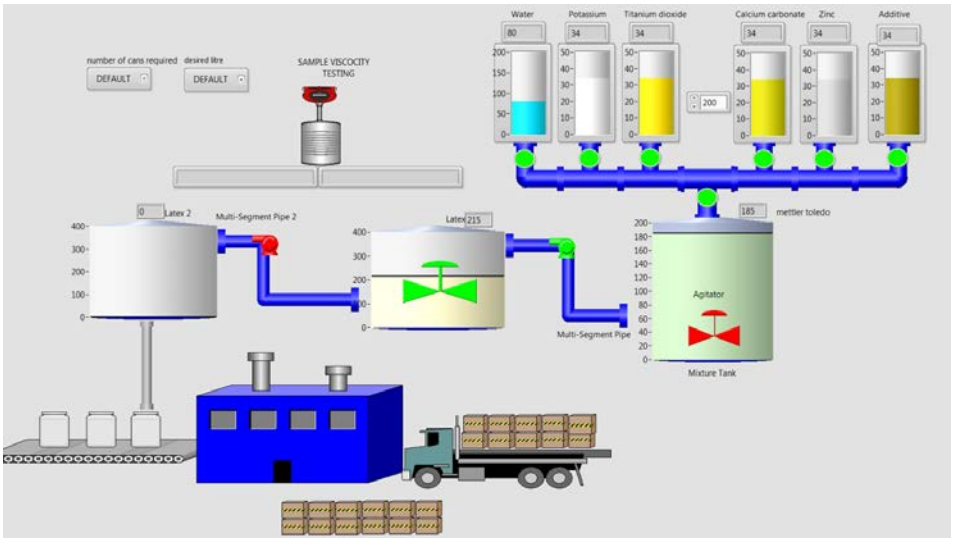
Abstract--- *Repeated jobs are done fast in batch systems without user interaction. The proposed work doesn't need special hardware and system support to input data in batch systems. Best for large organizations but small organizations can also benefit from it. It generally has lower capital costs. It has the flexibility to produce a variety of different product variations, or different products. It works well when small production runs are needed*

Keywords--- *PC Controls Fabricated Machine, Labview, Software Specifications.*

I. BLOCK DIAGRAM EXPLANATION



- The automatic paint mixing machine has been designed and implemented successfully in the Lab VIEW environment.
- The main goal for this work has been achieved to overcome the problems related to manual paint mixing.
- Lab view technique has offered a power full tool to design and implement a complete operation to automate the color mixing machine.
- This has been achieved through the virtual screen on the computer to monitor and control the mixing process.
- The Lab view software made the PC controls fabricated machine through the data acquisition interface and required programming.

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- The data base which encompasses all colors has been fed to the Lab view to control the amount of tinctures for each color.
- The amount of tinctures, which necessary to produce the desired color, has been controlled by adjusting the time interval of the valve opening.

II. SOFTWARE REQUIREMENTS

1) Data logging
2) Real time process in lab view

Labview

Laboratory Virtual Instrument Engineering Workbench (Lab VIEW) is a system-design platform and development environment for a visual programming language from National Instruments.LabVIEW offers a graphical programming approach that helps you visualize every aspect of your application, including hardware configuration, measurement data, and debugging.

This visualization makes it simple to integrate measurement hardware from any vendor, represent complex logic on the diagram, develop data analysis algorithms, and design custom engineering user interfaces.The graphical language is named "G"; not to be confused with G-code. Originally released for the Apple Macintosh in 1986, LabVIEW is commonly used for data acquisition, instrument control, and industrial automation on a variety of operating systems (OSs), including Microsoft Windows, various versions of Unix, Linux, and macos.

LABVIEW KEY CONCEPTS:Within LabVIEW there are several elements and concepts that are key to the format and operation of the environment. These include:LabVIEW environment: The LabVIEW environment consists of LabVIEW VI manager (project explorer), the programming tools, debugging features, templates and ready built sample examples, and an easy interface to the hardware drivers. Read more about LabVIEW environment.

LabVIEW VIs: The LabVIEW VI is a “Virtual Instrument” that enables a user interface to be built and it contains the programming code. Read more about LabVIEW Virtual Instruments, VIs.

LabVIEW G programming: This is the graphical programming language where the functional algorithms are built using “drag and drop” techniques. Read more about LabVIEW programming.

LabVIEW data flow: This is the core concept that determines the running order for the programming.

Advantages of Labview:

Graphical interface is flexible and simple to use. Most engineers and scientists can learn to use it quickly.

LABVIEW provides a universal platform for numerous applications in diverse fields.

LABVIEW can be used with 3rd party hardware: it can be interfaced with C/C++, VB, Fortran etc.

Easy to interface to many hardware items like data acquisition and test equipment products.

It has excellent customer support and a large active community forum.

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Disadvantages of LABVIEW

Lab VIEW is single sourced and some companies may not like to use a product that is single sourced and not standardized by the industry. Cost of ownership – although in line with many other industry products of a similar nature, its cost should be considered before it is introduced. For those more accustomed to text programming, graphical programming can take a little familiarization. Modified algorithm for batch processing using Lab View.

Algorithm

Step 1: open the data marking demo.lv project

Step 2: launch data set marking demo.vi from the project

Step 3: run the VI

Step 4: change the batch ID

Step 5: start run

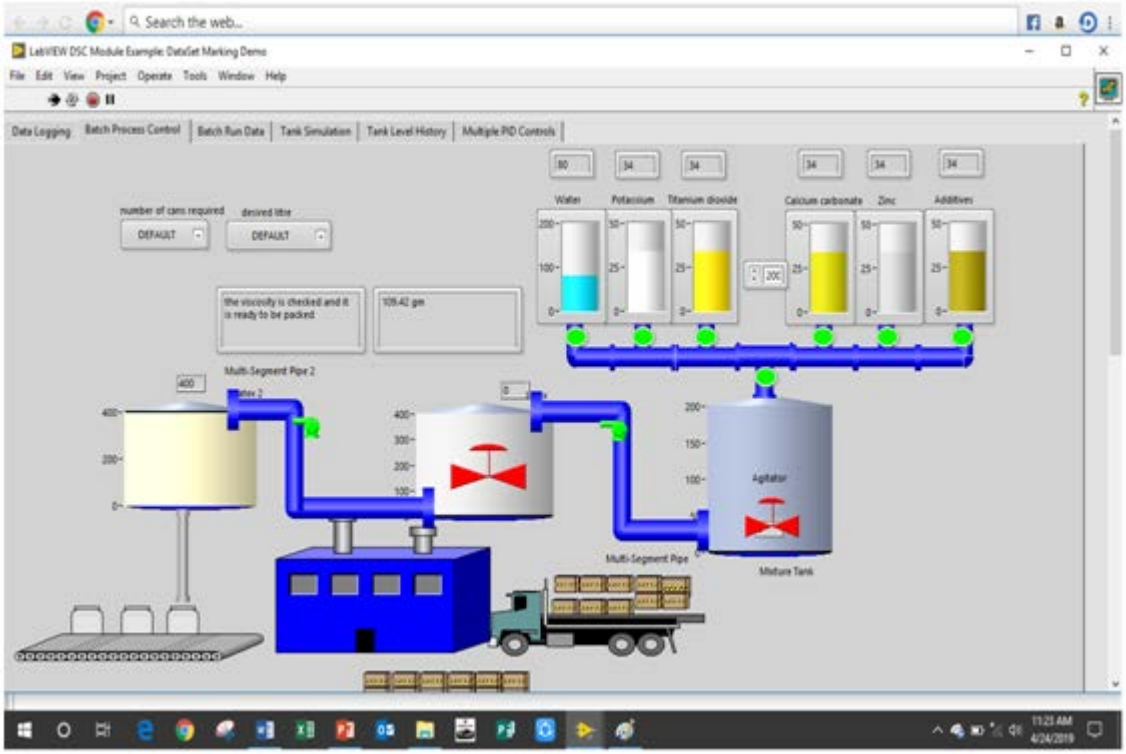
Step 6: start paint simulation and data logging

Step 7: change the tank simulation and change the set point for 2-3 times

Step 8: after simulation go to data logging and press stop run button this will stop data logging

Step 9: To read the data logged in the data base press query historical data

Step 10: stop VI and click stop run button



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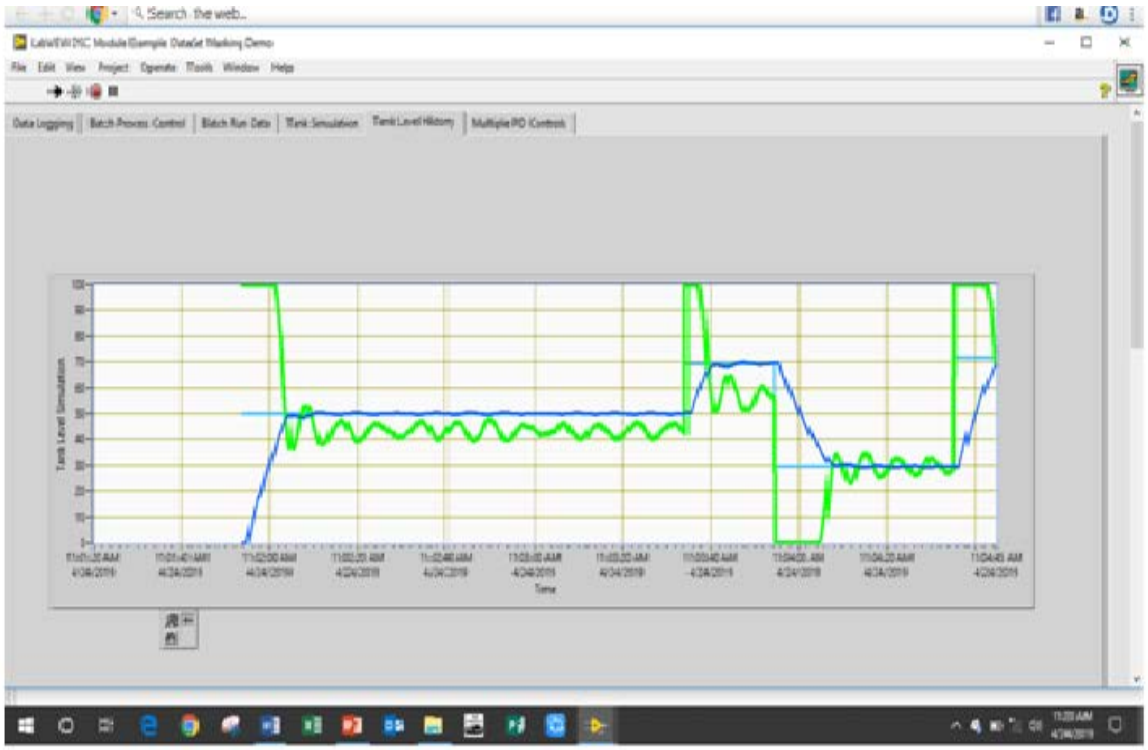
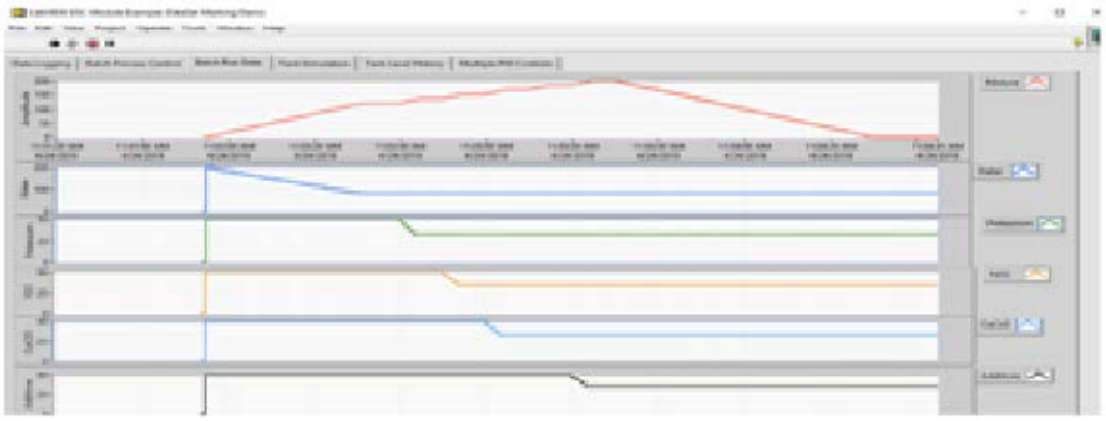
III. BATCH RUN DATA

Tank Level History



Experimental result –Total combined result for Time versus level of flow



Tank simulation- rate of change and delay improvement in data logging

IV. CONCLUSION

Repeated jobs are done fast in batch systems without user interaction. The proposed work doesn't need special hardware and system support to input data in batch systems. Best for large organizations but small organizations can also benefit from it. It generally has lower capital costs. It has the flexibility to produce a variety of different product variations, or different products. It works well when small production runs are needed.

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