

## INTISARI

### Kontrol Sistem *Mixing* Berbasis PLC Dengan *Software Vijeo Designer Basic V1.1* dan *Unity Pro V8.0*

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Mesin *mixing tank* merupakan salah satu mesin yang terdapat pada mesin industri. Mesin *mixing tank* biasa digunakan untuk mencampur bahan – bahan yang akan digunakan untuk pembuatan produk cair. Pada mesin ini terdapat beberapa proses atau unit yang beroperasi secara bersamaan maupun bergantian sehingga diperlukan sebuah sistem yang mampu mengatur berjalannya sistem tersebut. Oleh karena itu, penulis membuat program PLC pengontrolan sistem *mixing tank* dengan aplikasi *Vijeo Designer Basic V1.1* dan *Unity Pro V8.0* berdasarkan proyek yang berjalan di PT.Bintang Mas Karya Nusantara.

Sistem kontrol pada mesin *mixing tank* menggunakan dua buah tipe pengontrolan yaitu pengontrolan secara manual dan pengontrolan secara otomatis. Pengontrolan sistem secara manual digunakan untuk melakukan *input* berupa *target time*, *target bar*, *target speed*, target suhu, pemilihan jenis sirkulasi, pemilihan tingkat pemanasan dan pendinginan serta pemilihan proses yang akan dijalankan. Sedangkan pengontrolan secara otomatis dimulai dari pengaturan tekanan saat melakukan proses *intro liquid*, kemudian penambahan air melalui proses *addtop*, setelah bahan – bahan berada pada tangki *multimix* proses pemanasan atau pendinginan bahan dapat dilakukan yang kemudian bahan diaduk dengan menggunakan motor scraper dan impeller dan dibantu dengan proses sirkulasi sehingga bahan dapat tercampur lebih merata. Tahap selanjutnya ketika semua target sudah tercapai maka bahan dapat ditransfer ke tangki *wax* atau ke *filling machine*.

Berdasarkan hasil tabel simulasi dan pengujian yang sudah dilakukan oleh PT.Bintang Mas Karya Nusantara, sistem tersebut dapat berjalan dengan semestinya dan prosesnya dapat terbaca pada HMI yang sudah dibuat.

Kata Kunci : HMI, *Mixing*, PLC, *Unity Pro V8.0*, *Vijeo Designer Basic V1.1*

## ABSTRACT

### System Control *Mixing* Based On PLC Design With *Vijeo Designer Basic V1.1* and *Unity Pro V8.0* Software

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*Mixing* tank machine is one of the machines that contained in industrial machine. *Mixing* tank machine is generally used for *mixing* the ingredients that will be used to make a liquid product. In this *mixing* machine, there are several process and unit that would be operated at the same time or turn by turns. This machine system need so many process that running simultaneously and turn by turns, is that so we required a system that capable of arranging the running of the system. Therefore, the writer make a PLC program for system control *mixing* based on PLC design with *vijeo designer basic v1.1* and *unity pro v8.0 software* based on project that PT.Bintang Mas Karya Nusantara handle.

Control system in this *mixing* machine applying two type of controls, there are manual control and automatic control system. Manual system control is used to input target time, target bar, target speed, target temperature, selection of circulation type, heating and cooling rate selection and selection of process to be executed. While the control automatically starts from the pressure settings during the process of intro liquid, then the addition of water through the process of addtop, after the materials are in the tank multimix heating or cooling process of materials can be done which then the material stirred using scraper and impeller motors and assisted with the process circulation so that the material can be mixed more evenly. The next stage when all the targets have been reached then the material can be transferred to the wax tank or to the filling machine.

Based on the program and testing that has been taken by PT.Bintang Mas Karya Nusantara, the PLC program is running properly on the industrial *mixing tank* machine system and the process can be read on the HMI that had been created.

Keyword : HMI, *Mixing*, PLC, *Unity Pro V8.0*, *Vijeo Designer Basic V1.1*