Subject: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 21:39:25 GMT
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Finally I have finished latest big project with U++. Actually it is complete software solution for galvanization line.

Few words about the line itself. This is large industrial hangar with a number of baths (with acid, etc.). Workers tighten workpieces to the fixture.

File Attachments
1) view1.jpg, downloaded 1347 times

Subject: Re: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 21:48:01 GMT
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This fixture is taken by the nearest of three large cranes

and is put into the first bath. Then it is caught by cran again to be put to next bath. My customer company connected a number of sensors and microcontroller to each crane. Microcontroller is connected to these sensors and controls three engines moving crane itself and it's parts.

So the first part of this solution was to program each crane's controller to make crane getting and putting this fixture automaticly. The solution was made in TheIDE with Borland C++ 5.1 compiler. TheIDE has shown itself very stable and useful code editor even for unsopported platforms (DOS16).

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1) view2.jpg, downloaded 1335 times

Subject: Re: Industrial software solution
Posted by mirek on Wed, 08 Jul 2009 21:58:07 GMT
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Now this looks like writing software for some real HARDWARE

Subject: Re: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 21:58:35 GMT

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Then all these cranes' controllers where binded into one net with central terminal.
The second part of my work was central terminal's software controlling these cranes autonomously. This will make line fully automated.

Terminal is a PC-compliant device with touch-screen and modified version of Windows 2000. Its program was completely made in U++. With all respect to U++ authors I have to say that application made is working 24 hours each of 365 days without hangup or crash. I achieved this by eliminating any new/delete calls, switching to alt-MT, own RS232 class and using a number of stable control and optimization algorithms.

Control algorithm is rather complex and large (takes about 200+ kBytes of source codes).

GUI was developed according to the fact that there's no mouse or keyboard. All we can do is tap finger to the screen. So, that is the main window:

File Attachments
1) shot1.png, downloaded 1297 times

Subject: Re: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 21:59:46 GMT
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Login window has to consider no mouse/kbd too:

File Attachments
1) shot2-1.png, downloaded 1241 times

Subject: Re: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 22:01:23 GMT
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And finally settings window. This has really nothing difficult:

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1) shot3.png, downloaded 1357 times

Subject: Re: Industrial software solution
Posted by Mindtraveller on Wed, 08 Jul 2009 22:10:08 GMT
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As a conclusion, some highlights:

* Program consists of 6 threads which are interacting actively. Queueing MT-approach prooved itself stable and fits well into this task.

* Sqlite for program log works good. Even on sudden electricity shutdown it guarantees that log will survive without the need of repair. Actually it still works good with rather big messages database.

* RS232 class (to be introduced into this forum later) proved itself stable and good. Even unwanted signals on line didn't make any problems to correctly made protocols and good RS232 class

* NTL/U++ containers are wonderful solution. No iterators, no new/delete. Stability and reliability even for 24x365 working mode.

It took about 1,5 years to learn U++. It took a year to write and debug this solution. Finally I'm very glad to admit: moving from C++ Builder to U++ made work easier and programs faster. Glad to say to U++ authors that U++ is cool.

Subject: Re: Industrial software solution
Posted by Mindtraveller on Thu, 09 Jul 2009 21:08:22 GMT
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luzr wrote on Thu, 09 July 2009 01:58Now this looks like writing software for some real HARDWARE  Yeah, and debugging these things really beats shit out of metal, with sparkles and skirring.

Subject: Re: Industrial software solution
Posted by mirek on Thu, 09 Jul 2009 22:12:47 GMT
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Mindtraveller wrote on Thu, 09 July 2009 17:08luzr wrote on Thu, 09 July 2009 01:58Now this looks like writing software for some real HARDWARE  Yeah, and debugging these things really beats shit out of metal, with sparkles and skirring.

Lovely

BTW, is there any www product page we could reference eventually?

Mirek

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Subject: Re: Industrial software solution
Posted by tojocky on Fri, 10 Jul 2009 06:25:55 GMT
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Good news!
Congratulations!
U++ is really very good product. Thank to U++ authors.

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Subject: Re: Industrial software solution
Posted by Didier on Fri, 10 Jul 2009 18:33:46 GMT
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I'm waiting for the RS232 Class.

I'll port it to linux if the API suits well.

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Subject: Re: Industrial software solution
Posted by sergeynikitin on Sun, 19 Jul 2009 20:13:05 GMT
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Grandiose! Happy ending.

I liked the joke about the real equipment.

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