SOLVING COMPILATION PROBLEM WITH TRUETIME TOOLBOX AND WINDOWS ENVIRONMENT DIFFERENT PLATFORM (WIN XP & WIN7 /32BIT -64BIT)

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Abstract

This Paper has discovered a way to solve compilation problem of True time toolbox, a third-party tools inserts to Matlab for simulation purposes. Using the laboratory matrices language (Matlab) version 7.12, True time toolbox 2.0 Beta, a problem arises in the scientific laboratories of Dijlah University College, where it is noted that computers running under Windows XP with low requirement , within the normal installation of Matlab and visuals studio, shown to be ineffective due to the failure of compilation of files in the Matlab after added and tools file in the Windows, plus effecting stopping of Mikropic controller and shows some errors. Proven way proved scalability tools to work within high performance and all applications and programs in the exist windows.

KEYWORDS: TRUE TIME. DUC. COMPILATION PROBLEM. SIMULATION. MATLAB.

1. INTRODUCTION

In simulation time may increase or falls short of real time, and therefore the   TRUETIME mean simulation in exact time equal to true.

We must distinguish between the sense and meaning of the Real time computing is the computer operations in real time (as a telephone on the Open VPN or play games or any need to respond in real time and not break down computer operation. For example, while watching games on real time must not be interrupted for that part of the game would be lost during breaks while watching the game registered will not be affected by the outage because we can resume watching the moment of interruption. True Time is a Matlab/Simulink-based simulator for real-time control systems. This toolbox facilitates co-simulation of controller task execution in real-time kernels, network [1]. It has been developed at Lund University since 1999 [2]. The simulator software consists of a Simulink block library (Figure 1).

 This toolbox provides possibility to write tasks as M-files, C++ functions or call Simulink block diagrams from within the code functions (Figure 2).

True Time is based on Simulink the graphical simulation environment of MATLAB, and consists of computer and network blocks The True Time blocks are connected with ordinary Simulink blocks to form a real-time control system. The main feature of True Time is the possibility of co-simulation of the interaction between the real-world continuous dynamics and the computer architecture in the form of task execution and network communication [3].

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True Time blocks include generally used networks as Ethernet, CAN, TDMA, FDMA, Round Robin or Switched Ethernet). It supports simulation of Wireless networks (802.11b/g WLAN and 802.15.4 ZigBee) and battery-powered devices. In a brief description we can say, that True Time is a small library of simulation blocks which extends usability of Matlab/Simulink to simulate discrete network process control.

True Time is a software composed of many files some were written in Matlab language (extension. m) some were written in C++ (extension .cpp)and some are Simulink file models (extension .mdl) true time software need to be works and used in the Matlab environment.

In this paper we used A MATLAB product version (7.12 R2011a) Windows 7 & Windows XP(32/64bit). TRUETIME toolbox 2.0-beta7 compatible with windows. And tested on the PC's LABs of Dijlah University College its working without any problems recorded.

2. STARTING COMPILATION PART 1 IN THE MATLAB

2.1 CONFIGURE TRUE TIME EXTENSION

Install Matlab 7.12.0.635 (R2011a) or any Matlab version (R2010 a) or higher. Rune Matlab as an administrator. Copy the Kernel and Examples folders as shown in (Figure3) from inside (True time 2.0-beta7) folder then paste it in current folder window in MATLAB (Figure 4). Double click (Kernel) folder in order to be the current folder. Type in the (Command window) >>true time or double click on true time .mdl in the (current folder> kernel folder). In order to open true time even if you are in different directory, you have to write a start-up code.

2.2 START UP FILE

Run Matlab as an administrator

 Then click >file >new > script

Copy the code below and paste, correct the path (C:\Program Files\MATLAB\R2011a\kernel) according to your exact path to save the file to this path [4].

 Setenv('TTKERNEL', 'C:\Program Files\MATLAB\R2011a\kernel')

% getenv('TTKERNEL')

Add path (getenv ('TTKERNEL'))

Add path (strcat(getenv('TTKERNEL'), '/matlab/help'))

Add path (strcat(getenv('TTKERNEL'), '/matlab'))

Save as start-up .m

Type in command window >>start-up

Then type >>true time

It will open even if you are in different directory.

3. START COMPILATION PART 2 IN WINDOWS

Copy true time folder to my Document in your computer

Go to system properties >Advance > Environment variables > System variables > path click edit , Copy the path of KERNEL files in the windows then paste it in the system variables >edit system variables> Path as shown in (Figure 6).

3.1 ADDITIONAL SOFTWARE

Additional software is Visual studio 2010, SDK and NET Framework.

After installed Visual Studio 2010 or higher version and set the default compiler C++ (Figure 6). Install Microsoft Windows SDK, Platform SDK, and .NET Framework. Microsoft Windows SDK, Platform SDK, and NET Framework SDK are software development kits from Microsoft that contain header files, libraries, samples, documentation and tools required to develop applications for Microsoft Windows and NET Framework [5].

3.2 SET DEFAULT COMPILER

Go to command window in Matlab, and type:

>>mex-setup, you will see a message to choose which compiler, if there are more than one compiler, to set C++ compiler as default compiler for TRUETIME toolbox (Figure7).

>>make true time to compile kernel files in Matlab and windows (Figure 8).

4. RESULTS

Changing windows XP to windows 7 is not an option, because other programming languages (C++, turbo Pascal) been teaching in these Laboratories need windows XP to run in DOS environment. We installed additional software that make all products working correctly without any errors in windows XP and windows 7.

5. CONCLUSIONS

This paper show a new approach of installing toolbox composed of many files, used additional software without replacing computer's system, this method is alternative way to installing Higher languages and toolbox that requires system with high properties, on system with lower than their required properties. Free of errors capabilities to work with other applications and programs using same compiler and resources.

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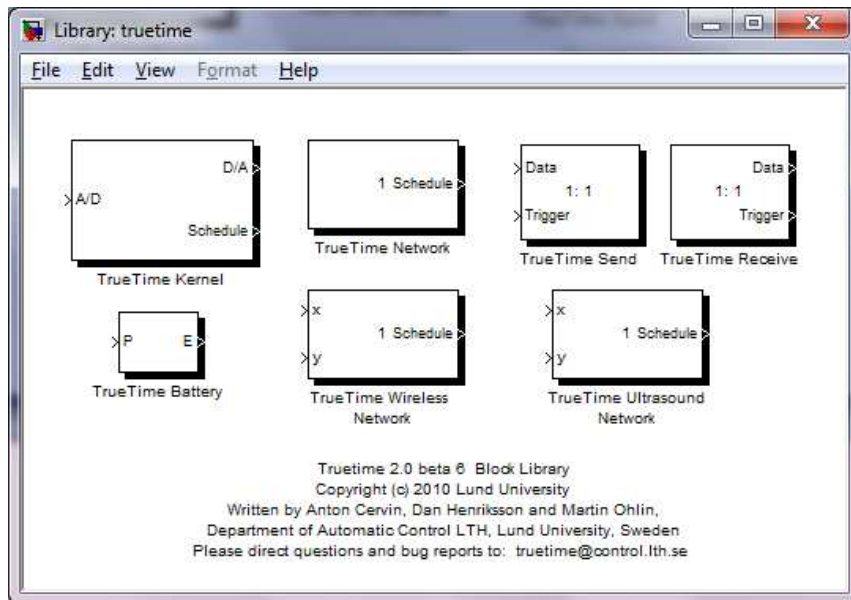
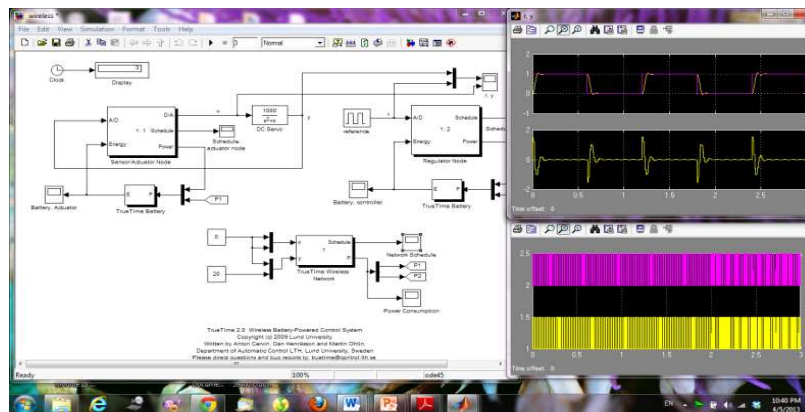## APPENDIGES

Figure 1: TRUETIME Library
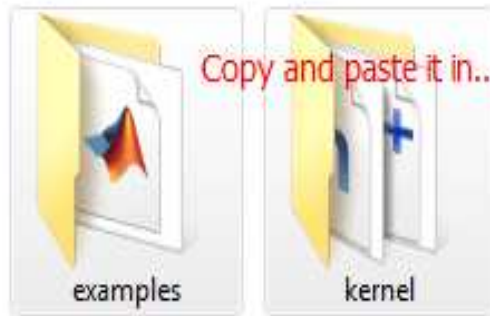

Figure 2: Wireless mode
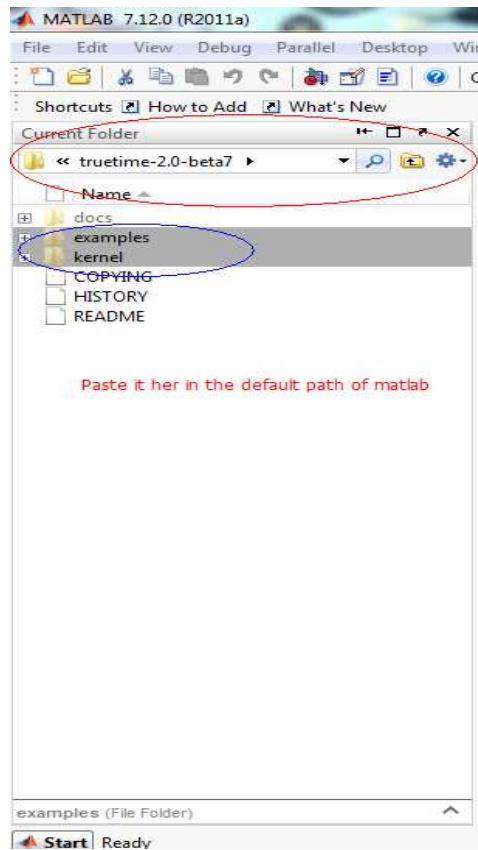
Figure 3:Truetime folders
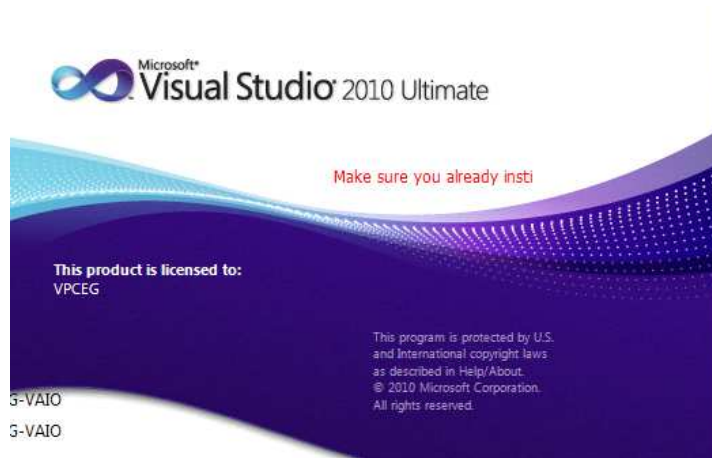

Figure 4: Current folder.
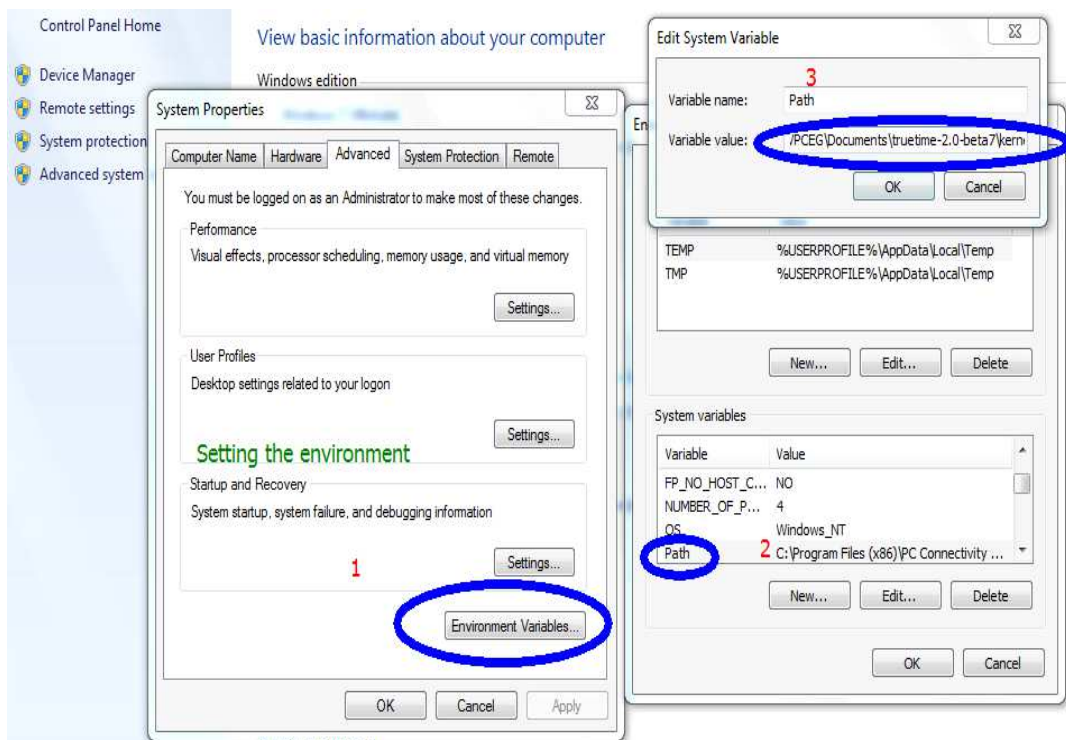
Figure 5: visual studio 2010.
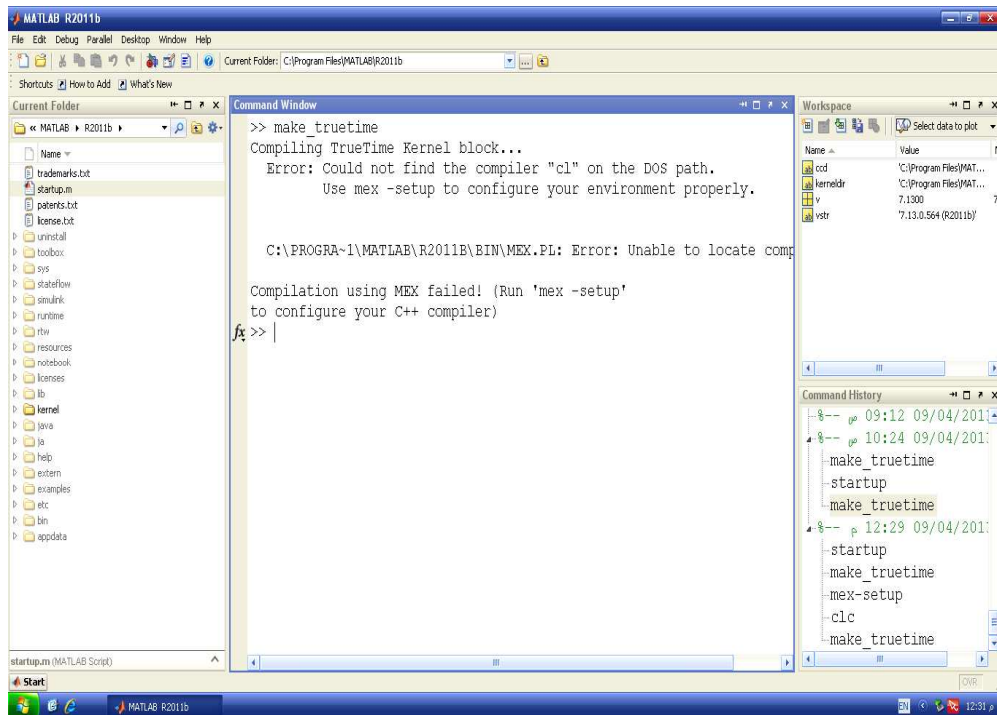

Figure 6: Advance system setting
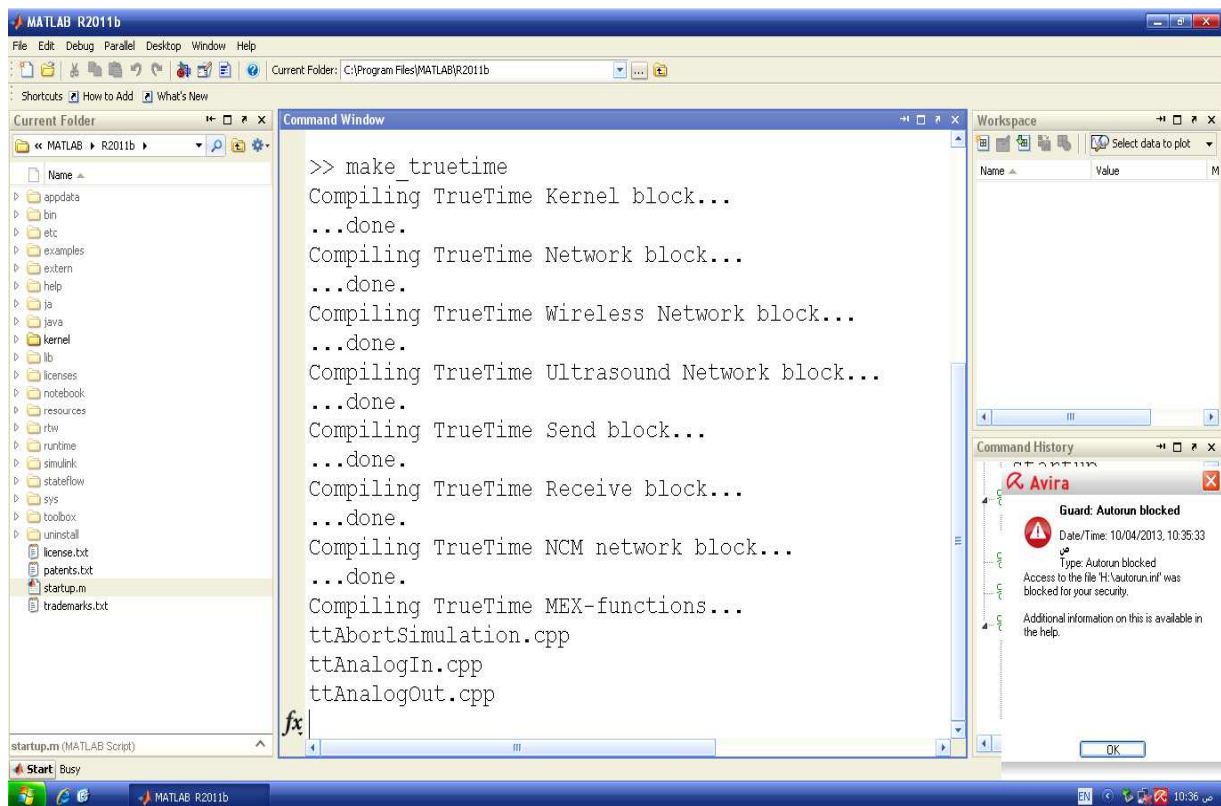
Figure 7: Undefined compiler

Figure 8: Compilation between kernel's files in Matlab and windows

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