I. DVD CONTENT DESCRIPTION

Please find following folders within the folder that contains this Read Me file.

Folder 1: e-Yantra_Tutorials

1. This folder contains three subfolders viz. Documentation, Experiment_ATMEL-Studio-6 and Video_Tutorial.
2. **Documentation** folder contains three files which will guide you through software installation steps, project creation and loading program.
3. **Experiment_ATMEL-Studio-6** folder contains master code written in **ATMEL STUDIO IDE.** These codes are for reference and can be used by teams to understand the programming logic. It is highly recommended that teams must refer these codes in cases when they are stuck in some program written by them. There is another Experiment folder located in 2nd Folder **"Fire Bird V ATMEGA2560 Robot".** This Experiment folder comprises of master code written in **AVR STUDIO-4 IDE.** Code in this folder can also be referred for understanding the logic.
4. The basic difference between above mentioned two experiment folders are that they are made in separate IDE, so you **cannot open** the project of AVR Studio in ATMEL Studio and vice-versa. However when a project is created in any of the two IDEs, a file is generated with extension ".c". This is the main program and can be opened in notepad for viewing.
5. **Video_Tutorial** folder contains seven video lectures and there slides covering all the basic concepts which will be needed for complete understanding of Firebird V robot.
6. Video_Tutorial folder contains seven subfolders. One folder for each of the tutorials.
7. Video Tutorial has lecture part explaining the theory through slides and voice-over followed by an explanation of program written in ATMEL STUDIO-6 and simultaneous demonstration of code on the robot.

Folder 2: Fire Bird V ATMEGA2560 Robot

This folder contains ten subfolders as mentioned below:

1. Accessories
2. AVR USB ISP STK500V2
3. AVR USB Programmer Documentation
4. Datasheets
5. Experiments
6. GUI and Related Firmware
7. Header File
8. Manuals and Application notes
9. Research Publications on the Robot
10. Software and Drivers

These folders have all necessary material which will be needed by team while working with Firebird-V robot.

II. GETTING STARTED WITH ROBOTICS

Please follow these steps **sequentially** to get started on "ROBOTICS"

All **team must read the Hardware and Software manual** of Firebird-V robot before starting the robot. These manual are at following location

DVD_Drive:\Fire Bird V ATMEGA 2560 Robot \Manuals and Application notes\Manuals

You have two options to begin with the installation of software and actual implementation on your robot. These two options explain the detail description of different version of Atmel software for the Firebird V robot.

Option 1

1. Install ATMEL STUDIO 6 on your System.
   Software given in location
   DVD_Drive:\Fire Bird V ATMEGA 2560 Robot\Software and Drivers\ATMEL_STUDIO_ 6-6.0.1843.exe

2. Steps for **installing ATMEL Studio 6** is given in the
   DVD_Drive:\ e-Yantra_Tutorials\Documentation\ 01_Installation_guide_AtmelStudio6.pdf

3. Next Step will be to **make sample project** in IDE. For ATMEL Studio 6 steps for project creation is given in
   DVD_Drive:\ e-Yantra_Tutorials\Documentation\ 02_Setting_project_AtmelStudio6.pdf

   You can open any sample project from experiment folder
   DVD_Drive:\ e-Yantra_Tutorials\ Experiment_ATMEL-Studio-6

   Follow all necessary steps as given in the documentation; you would now have generated a ".hex" file which you can load into the microcontroller.

4. You can load the ".hex" file by using **Bootloader;** steps for installing and using Bootloader is given in
   DVD_Drive:\ e-Yantra_Tutorials\Documentation\ 03_Installing_and_using_bootloader.pdf

5. Go through seven video tutorial given in
   DVD_Drive:\ e-Yantra_Tutorials\ Video_Tutorial

6. Go through the Tutorials in following order as per your convenience.
    - 01_Introduction
    - 02_IO_Buzzer Programming
    - 03_Motion_Control
    - 04_Velocity_Control_PWM
    - 05_LCD_Interfacing
    - 06_Interrupt
    - 07_ADC

If you are taking video tutorial for first time, follow this order strictly, otherwise it will get difficult to understand the topics properly.

Option 2

1. Installation of **AVR Studio 4** on your System.
   Software given in location
   DVD_Printing:\Fire Bird V ATMEGA2560 Robot\Software and Drivers\AVR Studio 4.17

2. Steps for **installing AVR Studio 4** is given in the
   Refer section 2 (page 12) of the Software manual for complete instruction of using the AVR Studio 4 on your system.

3. Next Step will be to **make sample project** in IDE. For ATMEL Studio 6 steps for project creation is given in
   Refer section 2.3 (page 20) of the Software manual for complete instruction of making the sample project in AVR Studio 4 on your system.

   Follow all necessary steps as given in the documentation; you would now have generated a ".hex" file which you can load into the microcontroller.

4. You can load the ".hex" file by using **Bootloader;** steps for installing and using Bootloader is given in
   Refer section 2.6 (page 29) of the Software manual for complete instruction of using the AVR Bootloader on your system.

Step number 5 and 6 will be same explained above in option 1.

If Teams get doubts while taking the tutorial, they can post the queries on e-Yantra Question-Answer forum at http://qa.e-yantra.org/