

AUTOMATIC VEHICLE RC BOOK AND DRIVING LICENSE VERIFICATION SYSTEM USING RFID

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ABSTRACT:

Now a day's every system is automated in order to face new challenges. In the present days Automated systems have less manual operations, flexibility, reliability and accurate. Due to this demand of less manual controlling, every one prefers automated control systems. Radio Frequency identification is one such technology which can be used to design automated systems. Radio-frequency identification (RFID) is the use of a wireless non-contact system that uses radio-frequency electromagnetic fields to transfer data from a tag attached to an object, for the purposes of automatic identification and tracking. Some tags require no battery and are powered by the electromagnetic fields used to read them. Others use a local power source and emit radio waves. The tag contains electronically stored information which can be read from up to several meters (yards) away. Unlike a bar code, the tag does not need to be within line of sight of the reader and may be embedded in the tracked object. In this paper RFID reader and RFID tags (vehicle RC book, driving license) are used. Whenever the tag is shown to the RFID reader, it read the data from the RFID tag. If the data is valid, it will display a statement "valid" on the LCD screen. Otherwise the buzzer will buzz. The main objective of this paper is to design an automated system which can perform tasks like vehicle RC book and driving license verification using RFID.

Keywords: RFID, LCD SCREEN, RC BOOK, DRIVING LICENCE

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I. INTRODUCTION TO EMBEDDED SYSTEM:

An embedded system is a special-purpose system in which the computer is completely encapsulated by or dedicated to the device or system it controls. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few predefined tasks, usually with very specific requirements. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded systems are often mass-produced, benefiting from economies of scale.

Personal digital assistants (PDAs) or handheld computers are generally considered embedded devices because of the nature of their hardware design, even though they are more expandable in software terms. This line of definition continues to blur as devices expand. With the introduction of the OQO Model 2 with the Windows XP operating system and ports such as a USB port — both features usually belong to "general purpose computers", — the line of nomenclature blurs even more.

Physically, embedded systems ranges from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. In terms of complexity embedded systems can range from very simple with a single microcontroller chip, to very complex with multiple units, peripherals and networks mounted inside a large chassis or enclosure.

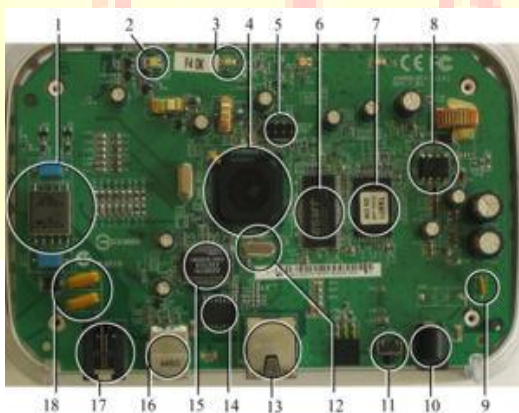
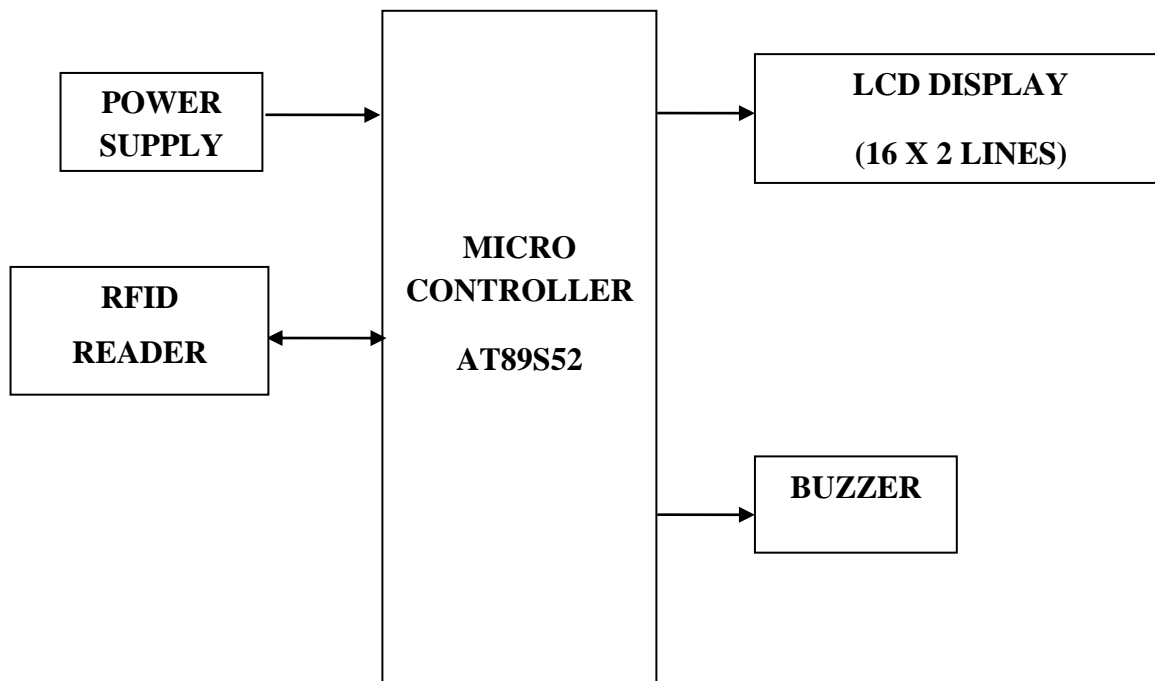


Figure 1.1: Embedded system configuration

2. Block diagram:



3. BLOCK DIAGRAM DESCRIPTION:

3.1 Power Supply Section:

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 9V ac followed by diodes. Here diodes are used to rectify the ac to dc. After rectification the obtained rippled dc is filtered using a capacitor Filter. A positive voltage regulator is used to regulate the obtained dc voltage.

3.2 Microcontroller Section:

This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

3.3 Buzzer Section:

This section consists of a Buzzer. The buzzer is used to alert / indicate the completion of process. It is sometimes used to indicate the start of the embedded system by alerting during start-up.

3.4 LCD Display Section:

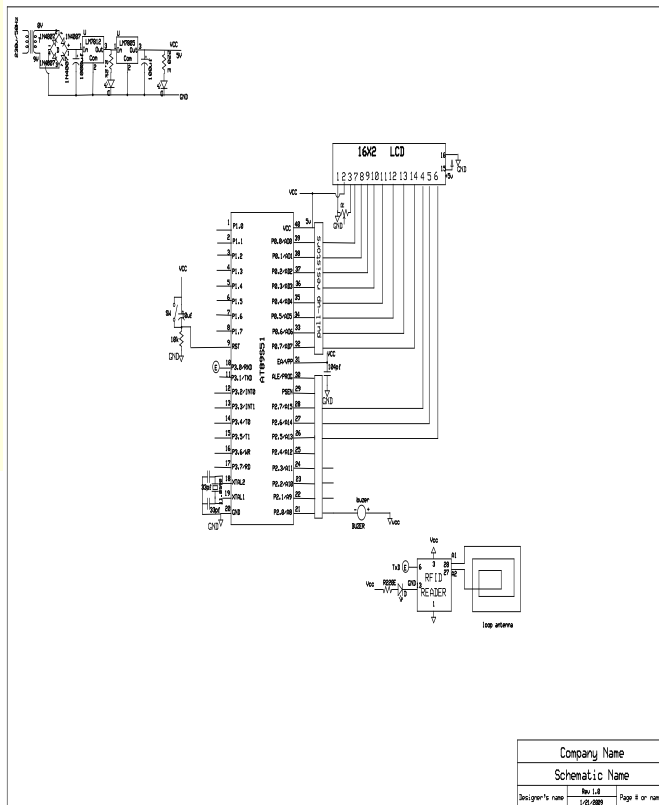
This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information.

3.5 RFID Reader (Radio Frequency Identification):

Radio Frequency Identification (RFID) is a generic term for non-contacting technologies that use radio waves to automatically identify people or objects. The combined antenna and microchip are called an "RFID transponder" or "RFID tag" and work in combination with an "RFID reader".

Radio Frequency Identification (RFID) is the latest technology that is being adopted to track and trace materials, including books.

4. SCHEMATIC DESCRIPTION:



4.1 EXPLANATION:

- 9th pin is connected is to the Reset circuit as shown in the figure
- 18th and 19th pins are connected to the crystal oscillator of crystal frequency of 11.0592 MHz as shown in the diagram
- 40th pin is connected to the vcc power supply as shown in the diagram and 20th pin is ground vss as shown in the diagram
- Port 0:
P0 is connected to the data pins of the LCD.
- PORT 2:
P2.5, P2.6, P2.7 are connected to control pins of the LCD.
- Buzzer: Buzzer is connected to the port P2.0.
- RFID READER: RFID reader is connected to the port P3.0.

5. HARDWARE COMPONENTS:

- Micro controller
- LCD Display
- Power Supply
- RFID
- Buzzer

6. SOFTWARE COMPONENTS:

*Keil software for c programming

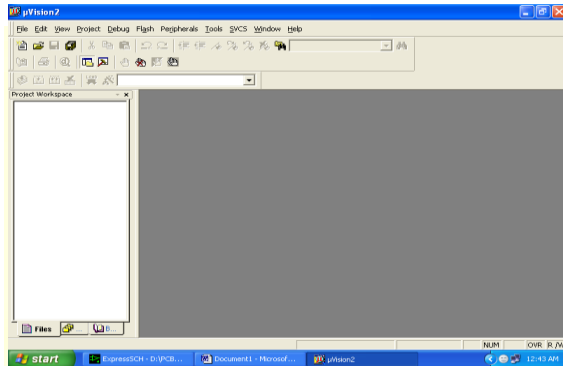
It is possible to create the source files in a text editor such as Notepad, run the Compiler on each C source file, specifying a list of controls, run the Assembler on each Assembler source file, specifying another list of controls, run either the Library Manager or Linker (again specifying a list of controls) and finally running the Object-HEX Converter to convert the Linker output file to an Intel Hex File.

Once that has been completed the Hex File can be downloaded to the target hardware and debugged. Alternatively KEIL can be used to create source files; automatically compile, link and covert using options set with an easy to use user interface and finally simulate or perform debugging on the hardware with access to C variables and memory. Unless you have to use the

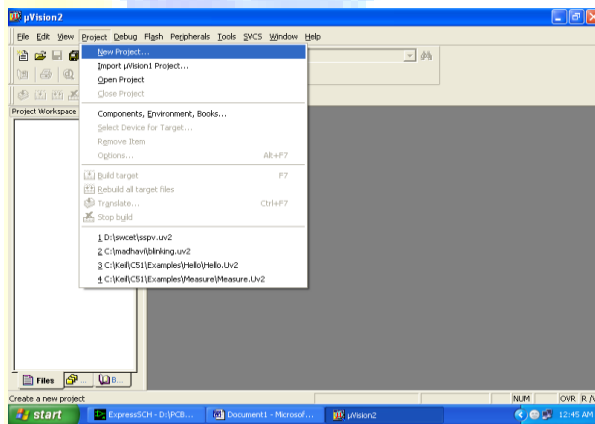
tolls on the command line, the choice is clear. KEIL Greatly simplifies the process of creating and testing an embedded application.

7. SIMULATION RESULTS:

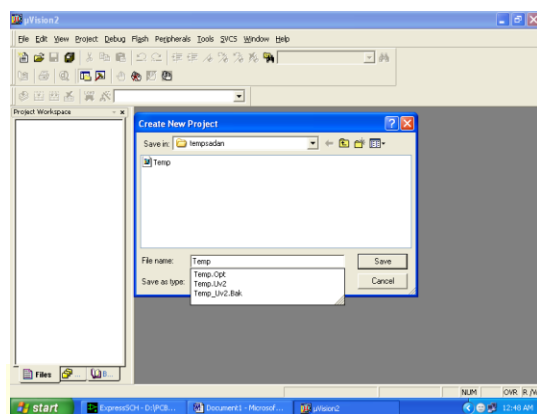
1. Click on the Keil u Vision Icon on Desktop
2. The following fig will appear



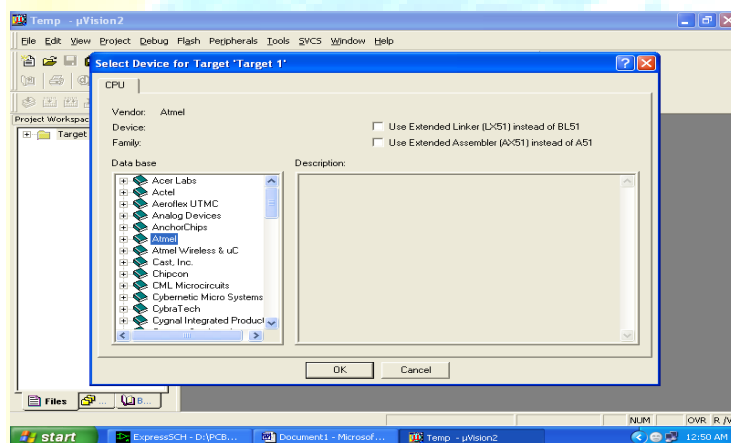
3. Click on the Project menu from the title bar
4. Then Click on New Project



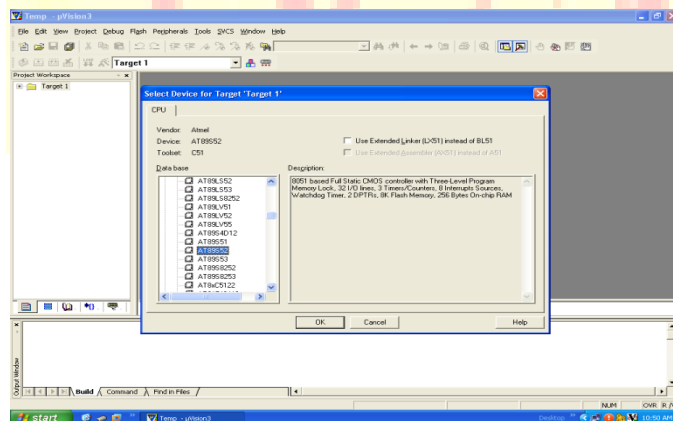
6. Save the Project by typing suitable project name with no extension in u r own folder sited in either C:\ or D:\



7. Then Click on Save button above.
8. Select the component for u r project. i.e. Atmel.....
9. 9Click on the + Symbol beside of Atmel

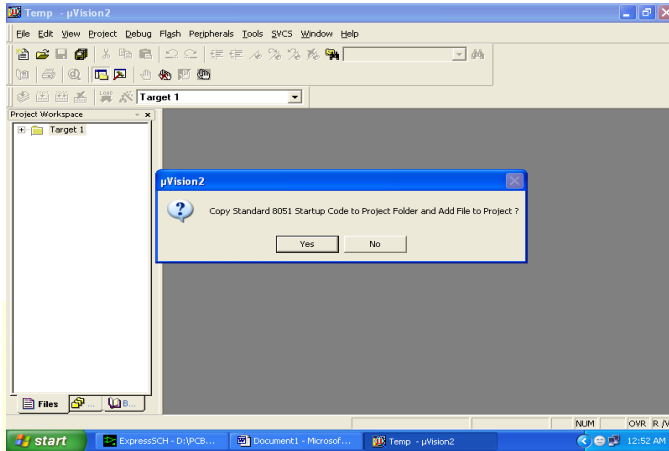


10. Select AT89S52 as shown below



11. Then Click on “OK”

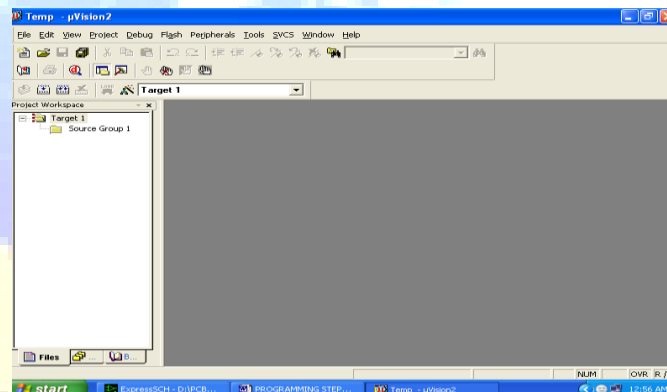
12. The Following fig will appear



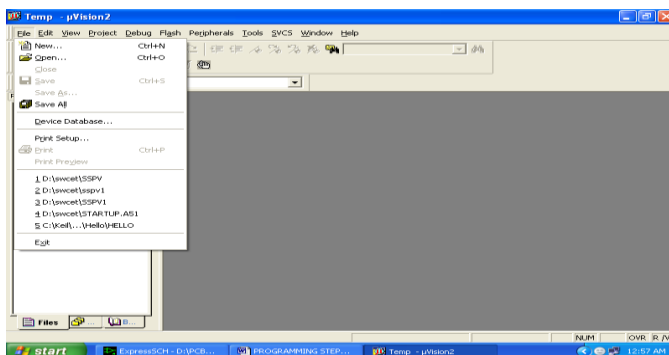
13. Then Click either YES or NO.....mostly “NO”

14. Now your project is ready to USE

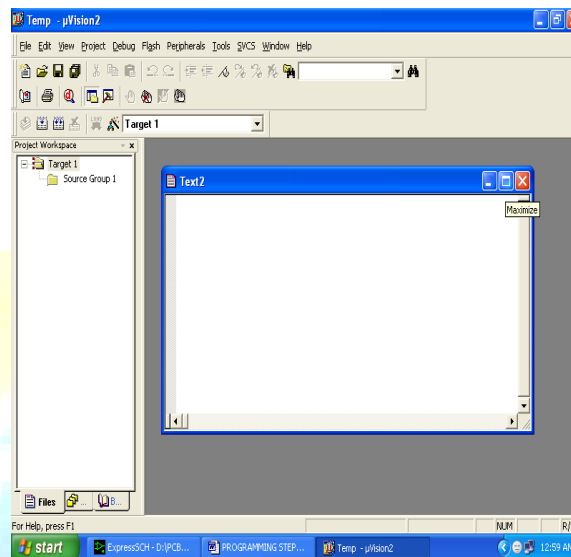
15 .Now double click on the Target1, you would get another option “Source group 1” as shown in next page



16 Click on the file option from menu bar and select “new”

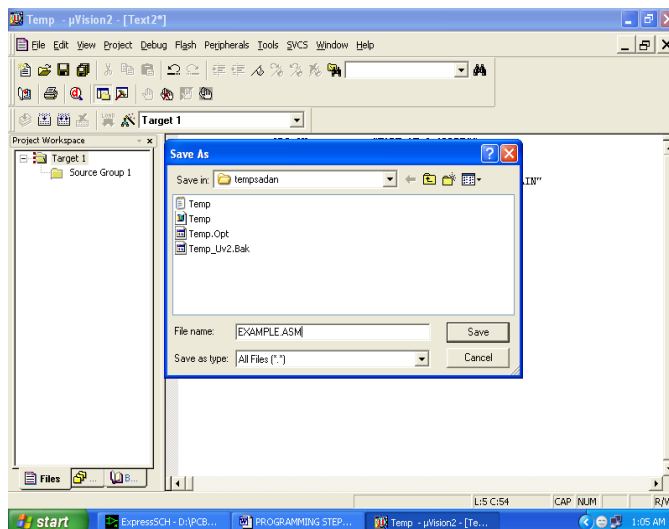


17. The next screen will be as shown in next page, and just maximize it by double clicking on its blue boarder.

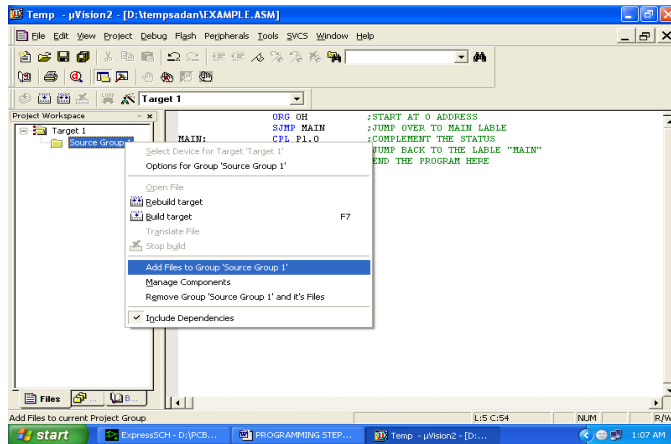


18. Now start writing program in either in “C” or “ASM”

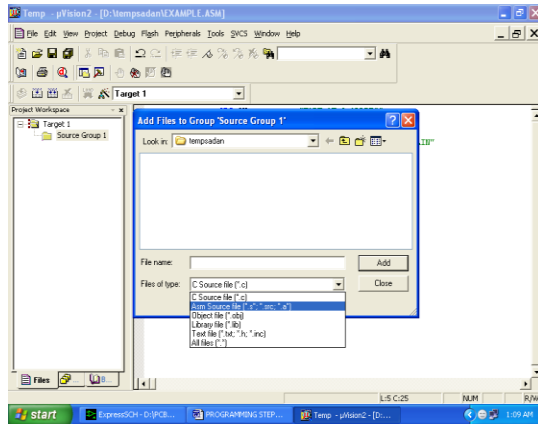
19. For a program written in Assembly, then save it with extension “. asm” and for “C” based program save it with extension “.C”



20. Now right click on Source group 1 and click on “Add files to Group Source”



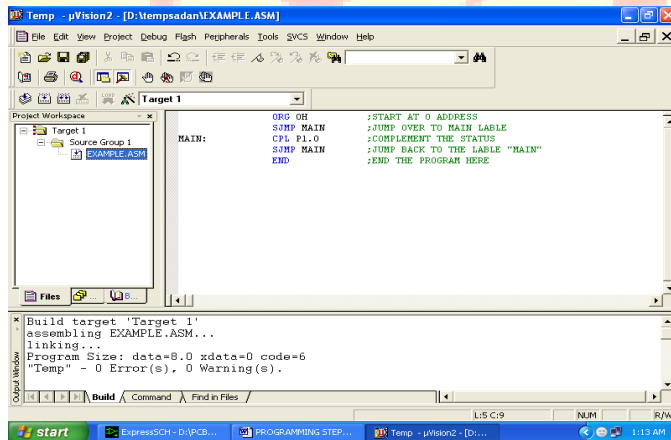
21. Now you will get another window, on which by default “C” files will appear.



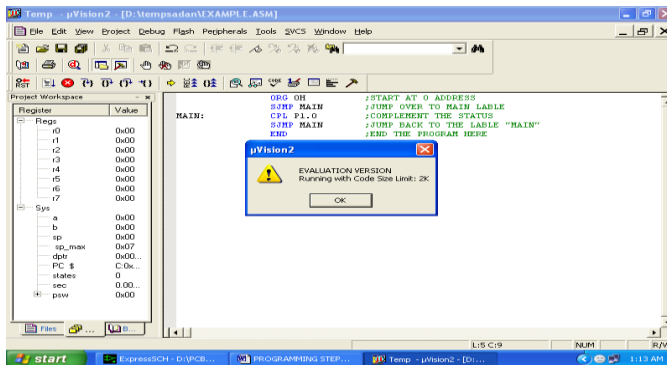
22. Now select as per your file extension given while saving the file

23. Click only one time on option “ADD”

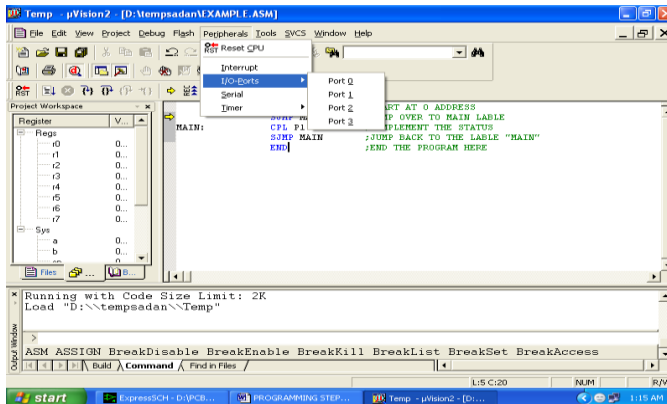
24. Now Press function key F7 to compile. Any error will appear if so happen.



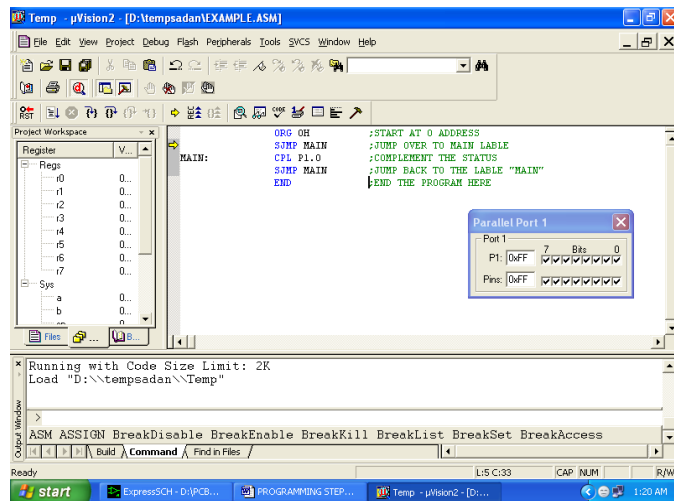
25. If the file contains no error, then press Control+F5 simultaneously.
26. The new window is as follows



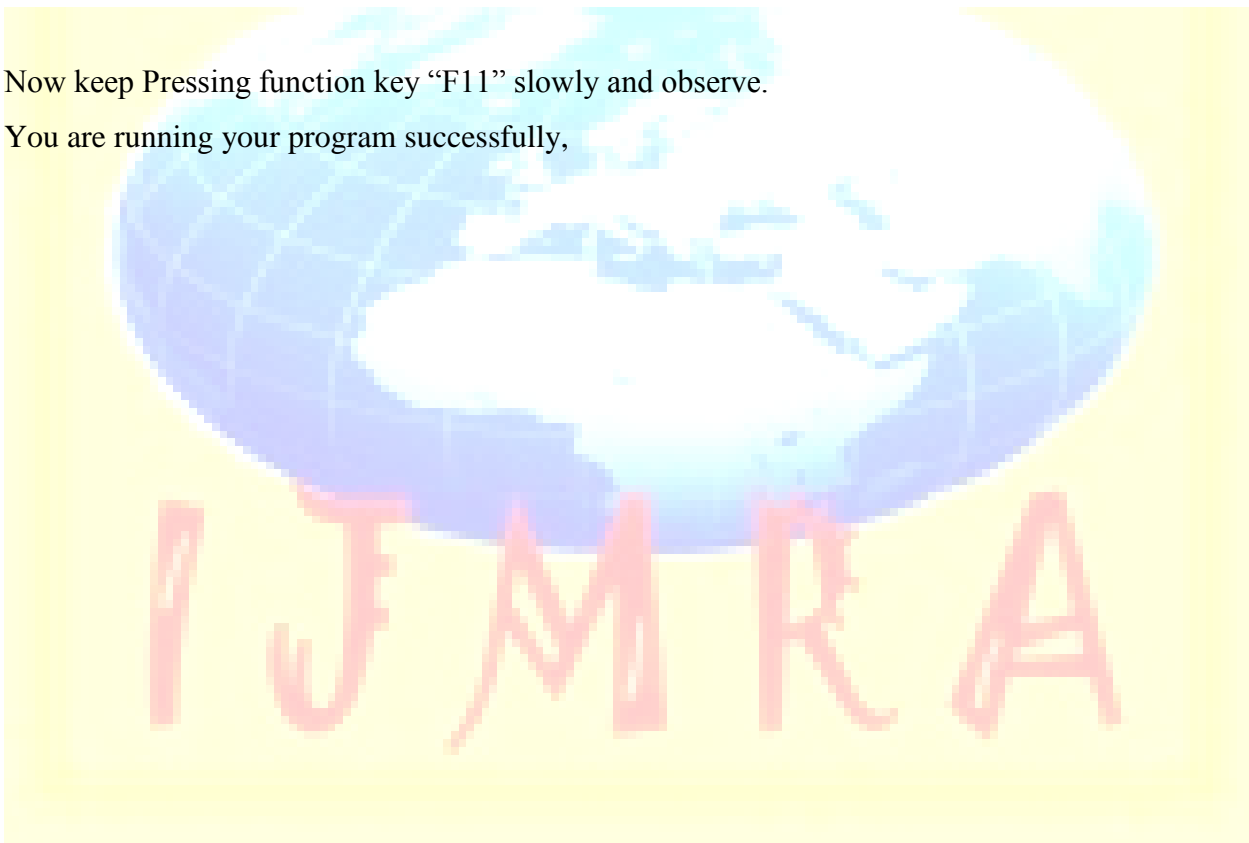
27. Then Click "OK"
28. Now Click on the Peripherals from menu bar, and check your required port as shown in fig below



29. Drag the port a side and click in the program file.



30. Now keep Pressing function key “F11” slowly and observe.
31. You are running your program successfully,



5. CONCLUSION:

The paper “AUTOMATIC VEHICLE RC BOOK &DRIVING LICENSE VERIFICATION SYSTEM USING RFID” has been successfully designed and tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC’s and with the help of growing technology the paper has been successfully implemented..

6.REFERENCES:

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- 4 **WWW.FRANKLIN.COM**
- 5 **WWW.KEIL.COM**
- 6 **www.howstuffworks.com**

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