

Open Source Board Development Using Gui-ide



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ABSTRACT

Arduino board gives the facility to write a code in few lines which was written in several pages in C language. During the conversion of these few lines into a hex file, Arduino translates this few lines' code in the same code which would be written in C language. Our project is a next step to Arduino board. Instead of writing a code in few lines, we provide graphical interface so that the user can access it easily. We will convert these graphics into a hex file for further processing. The next task will be as same as normal microcontroller. This system provides sets of digital and analog pins that can be interfaced to various expansion boards ("Shields") and other circuits. The board features serial communication interfaces for loading programs from PC. For programming, the microcontrollers, we provide INTEGRATED DEVELOPMENT ENVIRONMENT (IDE) based on processing projects which includes support for C, C++, JAVA programming languages. User can command this board what to do by sending a set of instructions to the microcontroller on board. To do so we use another programming language in the IDE software. The Arduino prototyping platform is a creative outlet for any user to produce technology through easily usable hardware and software. However, the steep learning curve of the Arduino programming language holds back many of its users. Through graphical and tangible programming languages users can effectively learn how to program for the Arduino platform. Incorporating tangible human computer interaction in Arduino technology yields positive results in learning ability and enthusiasm of programming language learnt. A new language for Arduino can be developed through interactive and participatory design practices which intend to be valuable for novice programmer.

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I. INTRODUCTION

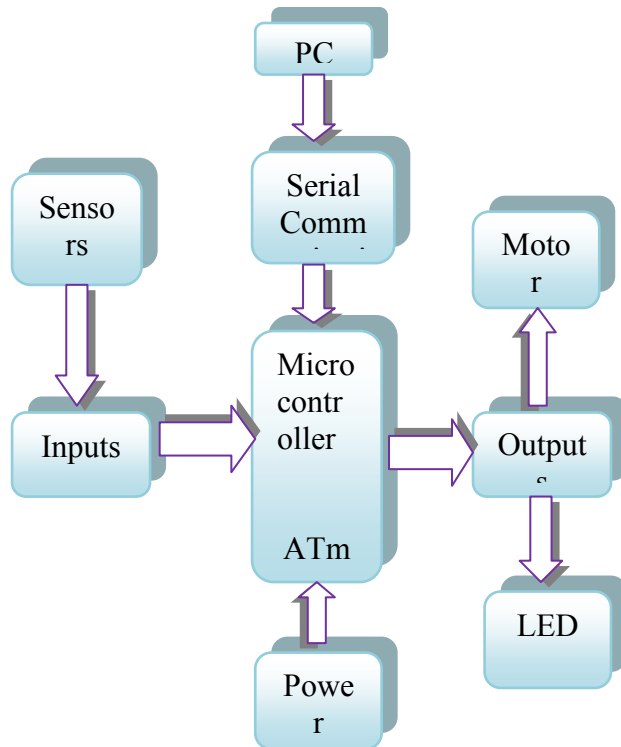
Arduino is an open source electronics prototyping platform (Arduino, 2005) that is used by expert to novice programmers. These novice programmers can be anyone from a child to artists. The aim of Arduino is to provide flexible, easy-to-use hardware and software but the difficulty lies in the Arduino programming language which controls the hardware and is controlled by a set of C/C++ functions. This language is difficult for novice users.

This project aims to look at the current work done with Arduino programming language and the difficulties faced by novice programmers. It looks at the challenges and use of participatory design to help users with the learning of the Arduino programming language.

In proposed system we provide the facility of easy coding to the user. Using this project non-technical users, school

going students, etc. can do coding easily using GUI-IDE without having the need of programming language.

II. PROPOSED SYSTEM-



1.INPUT :

Input can be either analog or digital. In this project the inputs that we are dealing with are basically sensors which can be digital or analog in nature.

2. SERIAL COMMUNICATION :

We are using USB cable for serial communication purpose.

3. ATmega16 MICROCONTROLLER

The ATmega16 microcontroller used in this lab is a 40-pin wide DIP chip. This chip was selected because it is robust, and the DIP package interfaces with prototyping supplies like solder less bread boards and solder-type bread-boards. This same microcontroller is available in a surface mount package, about the size of a dime. Surface mount devices are more useful for circuit boards built for mass production.

4.PC :

PC is used for GUI. User gives input at PC side. It provides the facility to select the input type and output type to the user. It will have "OK" option. After clicking this option the required program will be generated and burn in microcontroller.

5.Power Supply :

The basic step in the designing of any system is to design the power supply required for that system. The steps involved in the designing of the power supply are as follows:

- Determine the total current that the system sinks from the supply.
- Determine the voltage rating required for the different components.

6.OUTPUT :

- LED
- Relay
- Motor
- buzzer

In this project we are showing the output using the above components.

III.COMPONENTS

- 1.ATMEGA 16
- 2.LED
- 3.IR SENSORS
- 4.L298
- 5.MOTORS
- 6.CRYSTAL OSCILOTAR
- 7.1N007 DIODES
- 8.7805
- 9.100uf ELTROLTYIC CAPACITORS
- 10.TRANSFORMER[12V]

IV.ADVANTAGES

1. No need of knowledge of any programming language
2. Easy to implement projects
- 3.Childrens also can used because no need programming

V.EXISTING SYSTEM

Arduino board gives the facility to write a code in few lines which was written in several pages in C language. During the conversion of these few lines into a hex file, Arduino translates this few lines code in the same code which would be written in C language. Arduino is an open source electronics prototyping platform (Arduino, 2005) that is used by expert to novice programmers. These novice programmers can be anyone from a child to artists. The aim of Arduino is to provide flexible, easy-to-use hardware and software but the difficulty lies in the Arduino programming language which controls the hardware and is controlled by a set of C/C++ functions. This language is difficult for novice users.

DISADVANTAGES OF EXISTING SYSTEM

- 1.Here we need the knowledge of arduino programming language.

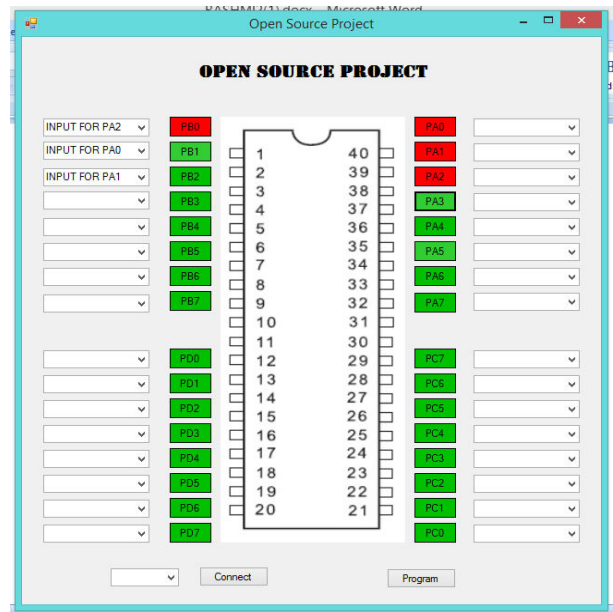
VI.HARDWARE REQUIREMENT

- 1.IR SENSOR-
- 2.MOTORS
- 3.ATMEGA 16
- 4.L298
- 5.ATMEGA 16
- 6.LED
- 7.IR SENSORS
- 8.L298
- 9.MOTORS
- 10.CRYSTAL OSCILOAR
- 11.1N007 DIODES

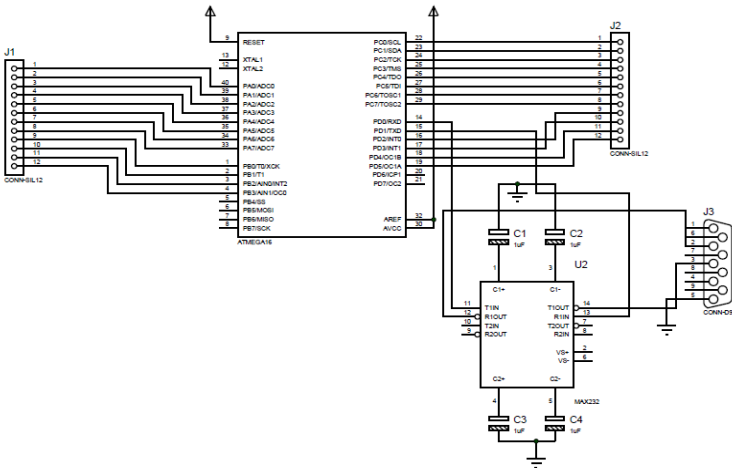
- 12.7805
- 13.100uf ELTROLTYIC CAPACITORS
- 14.TRANSFORMER[12V]

VII.SOFTWARE REQUIREMENT

- 1.IDE software
- This IDE is designed by our team as per our requirement
- 2.ATMEL STUDIO 7.0
- 3.VISUAL STUDIO 2015
- 4.SINAPROG HEXDOWNLOADER
- 5.languageS
- C#
- C,C++



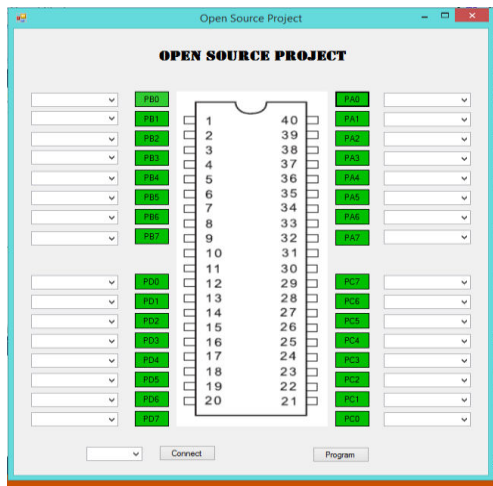
VIII.CIRCUIT DIAGRAM



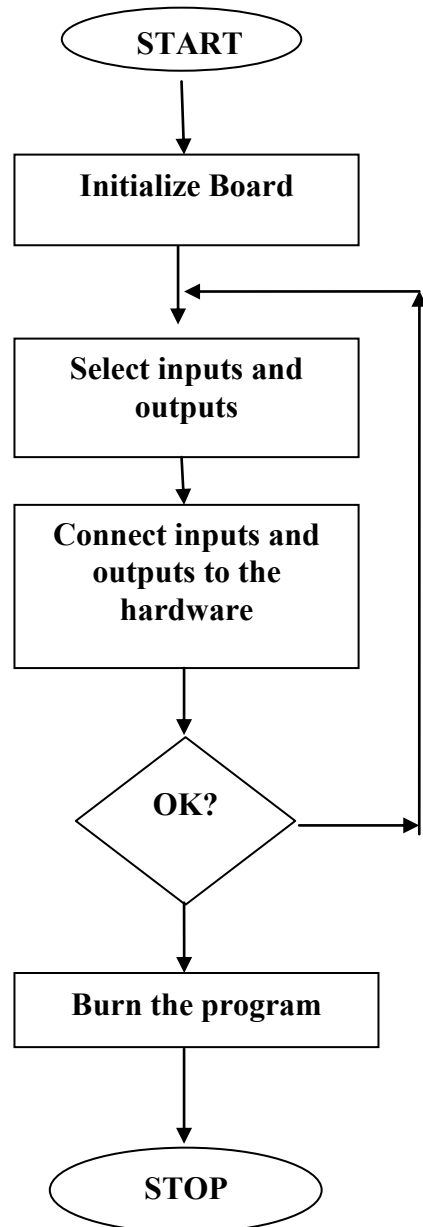
IX.CONCLUSION

An attempt is being made to design a compact and user friendly device which would help in the Shrine management and also to manage the crowd in the pre and post disaster conditions.

X.RESULTS



FLOW CHART



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