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College of Computer Science and Information Technology

Multimedia department

Desing and impalmintaion car voice controler using Arduino

A graduation project is submitted to the Multimedia department in partial fulfillment of the requirements for the degree of Bachelor in information technology in multimedia

By.

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الاهداء

إلى الذي وهبني كل ما يملك حتى أحقق له آماله، إلى من كان يدفعني قدما نحو الأمام لنيل المبتغى ، إلى مدرستي الأولى في الحياة ،مترجمة في تقديسه للعلم **أبي الغالي** ، إلى الإنسان الذي إمتلك الإنسانية بكل قوة إلى الذي سهر على تعليمي بتضحيات جسام ،

الى التي وهبت فلذة كبدها كل العطاء و الحنان حق الرّعاية و كانت سندي في الشدائد، و كانت دعواها لي بالتوفيق، تتبعتني خطوة خطوة في عملي، إلى من إرتحت كلما تذكرت إبتسامتها في وجهي **نبع الحنان أمي**

إلى إخوتي و أخواتي الذين تقـاسمو ا معي عبء الحياة

اهديهم ثمرة جهدي وبحثي هذا

الشكر والتقدير

قـــال رسول الله صلى الله عليه و سلم: "من لم يشكر الناس لم يشكر الله" صدق رسول الله صلى الله عليه و سلم الحمد الله على إحسانه و الشكر له على توفيقه و إمتنانه و نشهد أن لا إله إلا الله وحده لا شريك له تعظيما لشأنه و نشهد أن سيدنا و نبينا محمد عبده و رسوله الداعي إلى رضوانه صلى الله عليه و على آله و أصحابه و أتباعه و سلم . بعد شكر الله سبحانه و تعالى على توفيقه لنا لإتمام هذا البحث المتواضع أتقدم بجزيل الشكر إلى الوالدين العزيزين الذين أعانوني و شجعوني على الإستمرار في مسيرة العلم و النجاح، و إكمال الدراسة الجامعية و البحث؛ كما أتوجه بالشكر الجزيل إلى من شرفني بإشرافه على الذي لن تكفي حروف هذه المذكرة لإيفـــائه حقه بصبره الكبير علي، و لتوجيهاته العلمية التي لا تقدر بثمن؛ و التي ساهمت بشكل كبير في إتمام و إستكمال هذا العمل؛ كما أتوجه بخالص شكري و تقديري إلى كل من ساعدني من قريب أو من بعيد على إنجاز و إتمام هذا العمل. "رب أوزعني أن أشكر نعمتك التي أنعمت علي و على والدي و أن أعمل صالحاً ترضاه   و أدخلني برحمتك في عبادك الصالحين

بسم الله الرحمن الرحيم

" قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا ۖ إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ "

صدق الله العلي العظيم

سورة البقرة (اية 32)

Content

ABSTRACT

This Work is based on Arduino, motor driver and Bluetooth module. Arduino is an open source prototyping platform Based on easy-to-use hardware and software. Arduino uses an ATmega328 microcontroller. Since robotics has become a major part in our daily life and also in the engineering field and it plays a vital role in the development of new technology. This is a very simple and easy type form of remote control car, where the ordinary micro-controller has been replaced by Arduino and IR sensors has been replaced by a Bluetooth module. The remote can be any android or IOS cell phones. This project can be made in a bigger scale for real time vehicles.

Key words:-

    Arduino Uno, Motor Driver, Battery ,Motor

Chapter one

1.Introduction

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM "*Pulse width modulation*" outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP "*in-circuit serial programming*" header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again. "Uno" means one in Italian and was chosen to mark the release of Arduino Software 1.0. The Uno board and version 1.0 of Arduino Software were the reference

versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards. The L298 is an integrated monolithic circuit in a 15-lead Multi watt and PowerSO20 packages. It is a high voltage, high current

dual full-bridge driver designed to accept standard Time-to-live (**TTL**)(is a value in an Internet Protocol (IP) packet that tells a network router whether or not the packet has been in the network too long and should be discarded) logic levels and drive inductive loads such as relays, solenoids, DC and stepping motors. Two enable inputs are provided to enable or disable the device independently of the input signals. The emitters of the lower transistors of each bridge are connected . together and the corresponding external

terminal can be used for the connection of an external sensing resistor. An additional supply input is provided so that the logic works at a lower voltage. Bluetooth is a wireless technology standard for exchanging data over short distances (using short wavelength UHF radio waves in the ISM "*Institute for Supply Management*" band from2.4 to 2.485 GHz) from fixed and mobile devices, and building personal area networks (PANs). Range is approximately 10 Meters (30 feet). These modules are based on the Cambridge Silicon Radio BC417 2.4 GHz Bluetooth Radio. This is a complex chip which uses an external 8 Mbit flash memory [2].

Chapter

Two

2.Theory

2.1. Arduino :

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software , based on Processing. Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers - students, hobbyists, artists, programmers, and professionals - has gathered around this open-source platform, their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts alike[1].

Arduino was born at the Ivrea Interaction Design Institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IOT "

Internet of Things" applications, wearable, 3D printing, and embedded environments. All Arduino boards are completely open-source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is open-source, and it is growing through the contributions of users worldwide [3] .

Arduino has been used in thousands of different projects and applications. The Arduino software is easy-to-use for beginners, yet flexible enough for advanced users. It runs on Mac, Windows, and Linux. Teachers and students use it to build low cost scientific instruments, to prove chemistry and physics principles, or to get started with programming and

robotics. Designers and architects build interactive prototypes, musicians and artists use it for installations and to experiment with new musical instruments. Makers, of course, use it to build many of the projects exhibited at the Maker Faire, for example. Arduino is a key tool to learn new things. Anyone - children, hobbyists, artists, programmers - can start tinkering just following the step by step instructions of a kit, or sharing ideas online with other members of the Arduino community [2] .

There are many other microcontrollers and microcontroller platforms available for physical computing. Parallax Basic Stamp, Net media's BX-24, Phidgets , MIT's Handy-board, and many others offer similar functionality. All of these tools take the messy details of microcontroller

programming and wrap it up in an easy-to-use package. Arduino also simplifies the process of working with microcontrollers.

2.2 Advantages of Arduino:-

❖ Inexpensive - Arduino boards are relatively inexpensive compared to other microcontroller platforms.
The least expensive version of the Arduino module can be assembled by hand, and even the pre-assembled Arduino modules cost less than $50.

❖ Cross-platform - The Arduino Software (IDE) runs on Windows, Macintosh OSX, and Linux operating systems. Most microcontroller systems are limited to Windows.

❖ Simple, clear programming environment - The Arduino Software (IDE) is easy-to-use for beginners, yet flexible enough for advanced users to take advantage of as well. For teachers, it's conveniently based on the Processing programming environment, so students learning to program in that environment will be familiar with how the Arduino IDE works.

❖ Open source and extensible software - The Arduino software is published as open source tools, available for extension by experienced programmers. The language can be expanded through C++ libraries, and people

❖   wanting to understand the technical details can make the leap from Arduino to the AVR C (**AVR** Libc is a Free Software project whose goal is to provide a high quality C library for use with GCC on Atmel **AVR** microcontrollers) programming language on which it's based. Similarly, you can add AVR-C code directly into your Arduino programs if you want to.

❖   Open source and extensible hardware - The plans of the Arduino boards are published under a Creative Commons license, so experienced circuit designers can make their own version of the module, extending it and improving it. Even relatively inexperienced users can build the breadboard version of the module in order to understand how it works and save money [6].

2.3. Different Types Of Arduino Boards

Arduino board is an open-source platform used to make electronics projects. It consists of both a microcontroller and a part of the software or Integrated Development Environment (IDE) that runs on your PC, used to write & upload computer code to the physical board.The platform of an Arduino has become very famous with designers or students just starting out with electronics, and for an excellent cause [7].

- Arduino Uno (R3)
- LilyPad Arduino
- Red Board
- Arduino Mega (R3)
- Arduino Leonardo

Arduino Board	Processor	Memory	Digital I/O	Analogue I/O
Arduino Uno	16Mhz ATmega328	2KB SRAM, 32KB flash	14	6 input, 0 output
Arduino Due	84MHz AT91SAM3X8E	96KB SRAM, 512KB flash	54	12 input, 2 output
Arduino Mega	16MHz ATmega2560	8KB SRAM, 256KB flash	54	16 input, 0 output
Arduino Leonardo	16MHz ATmega32u4	2.5KB SRAM, 32KB flash	20	12 input, 0 output

Table 1:Features of Arduino types

2.4. Arduino Uno (R3)

We use Uno in this project since it suitable for our work.The Uno is a huge option for your initial Arduino. It consists of 14-digital I/O pins, where 6-pins can be used as PWM(pulse width modulation outputs), 6-analog inputs, a reset button, a power jack, a USB connection and more. It includes everything required to hold up the microcontroller; simply attach it to a PC with the help of a USB cable and give the supply to get started with a AC-to-DC adapter or battery [7].

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.. You can tinker with your UNO without worring too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again. "Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino

Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino

boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards [9].

The Arduino Uno can be programmed with the (Arduino Software (IDE)). Select "Arduino/Genuino Uno from the Tools Board menu (according to the microcontroller on your board). For details, see the reference and tutorials. The ATmega328 on the Arduino Uno comes preprogrammed with a bootloader that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files). You can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header using Arduino ISP or similar; see these instructions for details. The ATmega16U2 (or 8U2 in the rev1 and rev2 boards) firmware source code is available in the Arduino repository. The ATmega16U2/8U2 is loaded with a DFU "**Device Firmware Upgrade"** bootloader[10].

Which can be activated by:

On Rev1 boards: connecting the solder jumper on the back of the board (near the map of Italy) and then reseing the 8U2.

On Rev2 or later boards: there is a resistor that pulling the 8U2/16U2 HWB line to ground, making it easier to put into DFU mode [8].

You can then use Atmel's FLIP software (Windows) or the DFU programmer (Mac OS X and Linux) to load a new firmware. Or you can

use the ISP header with an external programmer (overwriting the DFU bootloader). See this user-contributed tutorial for more information. Warnings The Arduino Uno has a resettable polyfuse that protects your computer's USB ports from shorts and overcurrent. Although most computers provide their own internal protection, the fuse provides an extra layer of protection. If more than 500 mA is applied to the USB port, the fuse will automatically break the connection until the short or overload is removed. Differences with other boards The Uno differs from all preceding boards in that it does not use the FTDI" **Future Technology Devices International"** USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter. Power The Arduino Uno board can be powered via the USB connection or with an external power supply. The power source is selected automatically. External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the GND and Vin pin headers of the POWER connector. The board can operate on an external supply from 6 to 20 volts. If supplied with less than 7V, however, the 5V pin may supply less than five volts and the board may become unstable. If using more than 12V, the voltage regulator may overheat and damage the board. The recommended range is 7 to 12 volts. The power pins are as follows:

1. Vin. The input voltage to the Arduino/Genuino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.

2. 5V.This pin outputs a regulated 5V from the regulator on the board. The board can be supplied with power either from the DC power jack (7 - 12V), the USB connector (5V), or the VIN pin of the board (7-12V). Supplying voltage via the 5V or 3.3V pins bypasses the regulator, and can damage your board. We don't advise it.

3. 3V3. A 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50 mA.

4. GND. Ground pins.

5. IOREF. This pin on the Arduino/Genuino board provides the voltage reference with which the microcontroller operates. A properly configured shield can read the IOREF pin voltage and select the appropriate power source or enable voltage translators on the outputs to work with the 5V or 3.3V.

Memory The ATmega328 has 32 KB (with 0.5 KB occupied by the bootloader). It also has 2 KB of SRAM" **Static random-access memory"** and 1 KB of EEPROM "**electrically erasable programmable read- only memory** " (which can be read and written with the EEPROM library).

Input and Output See the mapping between Arduino pins and ATmega328P ports. The mapping for the Atmega8, 168, and 328 is identical. PIN MAPPING ATmega328P Each of the 14 digital pins on the Uno can be used as an input or output, using pin-Mode() , digital-Write() , and digital-Read() functions. They operate at 5 volts. Each pin can provide or receive 20 mA as recommended operating condition and has an internal pull-up resistor (disconnected by default) of 20-50k ohm. A maximum of 40mA is the value that must not be exceeded on any I/O pin to avoid permanent damage to the microcontroller [6].

In addition, some pins have specialized functions:

1. Serial: 0 (RX) and 1 (TX). Used to receive (RX) and transmit (TX) TTL serial data. These pins are connected to the corresponding pins of the ATmega8U2 USB-to-TTL Serial chip.

2. External Interrupts: 2 and 3. These pins can be configured to trigger an interrupt on a low value, a rising or falling edge, or a change in value. See the attachInterrupt() function for details.

3. PWM: 3, 5, 6, 9, 10, and 11. Provide 8-bit PWM output with the analogWrite() function.

4. SPI: 10 (SS), 11 (MOSI), 12 (MISO), 13 (SCK). These pins support SPI communication using the SPI library.

5. LED: 13. There is a built-in LED driven by digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.

6. TWI: A4 or SDA pin and A5 or SCL pin. Support TWI communication using the Wire library.

The Uno has 6 analog inputs, labeled A0 through A5, each of which provide 10 bits of resolution (i.e. 1024 different values). By default they measure from ground to 5 volts, though is it possible to change the upper end of their range using the AREF "**Association of Real Estate Funds** " pin and the analog-Reference() function. There are a couple of other pins on the board:

AREF. Reference voltage for the analog inputs. Used with analog-Reference().

Reset. Bring this line LOW to reset the microcontroller. Typically used to add a reset button to shields which block the one on the board.

Communication Arduino/Genuino Uno has a number of facilities for communicating with a computer, another Arduino/Genuino board, or other microcontrollers. The ATmega328 provides UART "**universal asynchronous receiver-transmitter"** TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The 16U2 firmware uses the standard USB COM drivers, and no external driver is needed. However, on Windows, a .inf file is required. The Arduino Software (IDE) includes a serial monitor which allows simple textual data to be sent to and from

the board. The RX and TX LEDs on the board will flash when data is being transmitted via the USB-to-serial chip and USB connection to the computer (but not for serial communication on pins 0 and 1).

A Software-Serial library allows serial communication on any of the Uno's digital pins. The ATmega328 also supports I2C (TWI) and SPI communication. The Arduino Software (IDE) includes a Wire library to simplify use of the I2C bus; see the documentation for details. For SPI communication, use the SPI library.

2.5. Automatic (Software) Reset

Rather than requiring a physical press of the reset button before an upload, the Arduino/Genuino Uno board is designed in a way that allows it to be reset by software running on a connected computer. One of the hardware flow control lines (DTR) of the ATmega8U2/16U2 is connected to the reset line of the ATmega328 via a 100 nanofarad capacitor. When this line is asserted (taken low), the reset line drops long enough to reset the chip. The Arduino Software (IDE) uses this capability to allow you to upload code by simply pressing the upload button in the interface toolbar. This means that the bootloader can have a shorter timeout, as the lowering of DTR "**Define The Relationship"** can be well-coordinated with the start of the upload. This setup has other implications. When the Uno is connected to either a computer running Mac OS X or Linux, it resets each time a connection is made to it from software (via USB). For the

following half-second or so, the bootloader is running on the Uno. While it is programmed to ignore malformed data (i.e. anything besides an upload of new code), it will intercept the first few bytes of data sent to the board after a connection is opened. If a sketch running on the board receives one-time configuration or other data when it first starts, make sure that the software with which it communicates waits a second after opening the connection and before sending this data. The Uno board contains a trace that can be cut to disable the auto-reset. The pads on either side of the trace can be soldered together to re-enable it. It's labeled "RESET-EN". You may also be able to disable the auto-reset by connecting a 110 ohm resistor from 5V to the reset line; see this forum thread for details [6].

2.6. Components Used

Power Supply: A power supply is an electronic device that supplies electric energy to an electrical load. The primary function of a power supply is to convert one form of electrical energy to another and, as a result, power supplies are sometimes referred to as electric power converters.

Bluetooth module: It is small wireless serial communication module that can be connected with a Micro-Controller to receive and send data when connected with other Bluetooth devices.

Motor driver: It is a small circuit that hoists the motor driving IC, and can control two motors at the same time. It controls the motor speed by pulse width modulation (PMW).

Chapter

Three

3.1 Algorithm :

Step 1: connect the car with any mobile by Bluetooth

Step 2: open interface of any programs to (control by voice) using Arduino

Step 3: talk by using google talk then this program converts the voice to word (code)

Step 4: if user say go ahead this mean car move to ahead ,if say go back mean car return to back , if say turn left , the car turn left and if say turn right mean car turn right

Step 5 : if we end we can switch off the car and off the Bluetooth and close program.

3.2 .Component of project

3.2.1. Arduino UNO :

Arduino is open source electronic prototyping platform based on flexible to use easy to use hardware and software tool which includes a microprocessor. Arduino uses ATmega series microcontroller. Today there are many type of Arduino exist today most popular ones are Arduino MEGA, Arduino UNO and many other type. Arduino UNO uses ATmega328 series of microcontroller; it has 28 ports inside it. Arduino has 20 pins 14 of them are Digital I/O pins and 6 of them are PWM (analog) output. Arduino has 32k flash memory include itself and its clock speed 16Mhz[3].

Arduino's specifications it is about 75x54x15 mm size and its weight 25 gram. Figure 1 shows a picture of Arduino UNO and USB connector cable with it. Arduino can be connecting computer with using USB cable. When user put computer its cable Arduino starts working uses power which took from computer and starts working. Arduino also permits users to debugging on their hardware and also software while computer connected to the computer if user defines serial communication with his board then he can easily see what Arduino does when it is working. Arduino allows fast transfer rates and there is no requirement for any drivers when using it and Arduino also have ability to connect some external hardware like Bluetooth, receiver, transmitter, mouse, keyboard, LCD screen and etc. when user connected external device all he needs to do indicate its dictionary on the code part and start codding and Arduino itself makes every changing, configurations, setting on its background engines[3].

Figure 1: Arduino UNO board and its USB connection cable.

Arduino has it is own software and this software can be freely downloadable on the Arduinos own web side. This software of Arduino is very easy to use it does not requires too much configuration one you choose your dictionaries and wrote your code Arduino takes care of all other configuration settings and makes things much more easier. To installing code to Arduino is also very easy after code verified its complier than user just need to connect its cable to the PC than Arduino's software finds its hardware and when user installs code to the hardware it is still easy to debug Arduino without using different hardware or software. If user defines serial communication with PC then user can check what Arduino does when it's working. When software fist opened an empty space opening this pages name became today's history and it called sketch_history and alphabetical count for number of new document. Arduinos option bar include five different menus these are file, edit, sketch, tools and help these menus help user to find user's required applications. Ons the file menu examples are very tutoring for the beginners and they are also shows user how to use dictionaries on their applications. And second option bar includes verify, upload serial monitor, new, open, save functions. Figure 2 indicates an empty Arduino page on my computer [3].
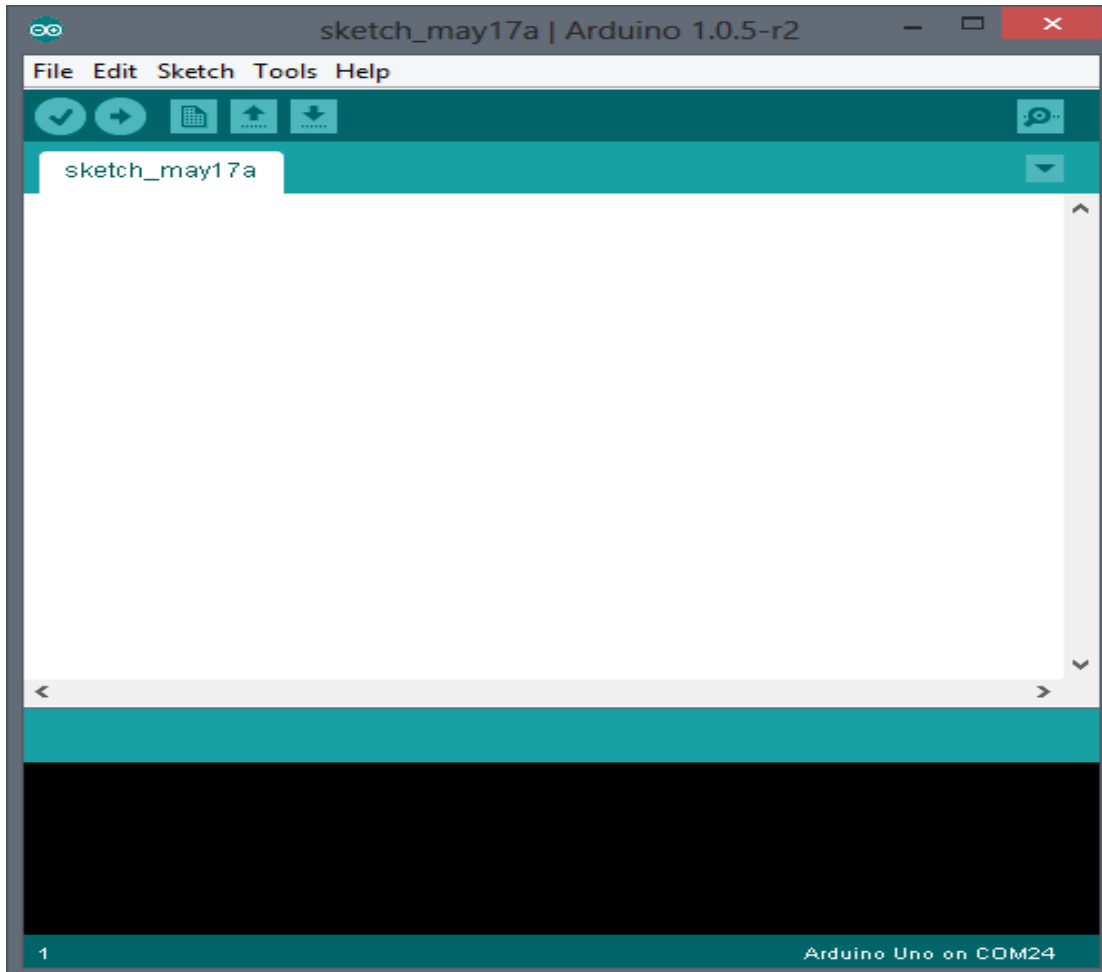
Figure 2: Arduino software an empty page screen shoot.

3.2.2. Adafruit's motor shield circuit

Arduino can be using with another hardware while installing and using its dictionary. In this project Arduino should control two different motor and to control these Adafruit motor shield has been used. This shield could control 4 different DC motor, 2 servo motor and 1 stepper motor. This shield provided 4H-Bridges on its L293D chipset and per bridge can stand and have self-shutdown opportunity for more than 0.6A or 1.2A peak. 4 directional DC motor have 8 bit speed control option this devices can stand hot and when something goes wrong they have protection diodes on their self. It also comes with its own dictionary to help users; users can directly write direction of rotation setting speed easily and manage motors torque. These shields also

provide user to use six analog input pin of the Arduino so user could add another external hardware on his system. Figure 3 shows an Adafruit motor shield circuit. [3]
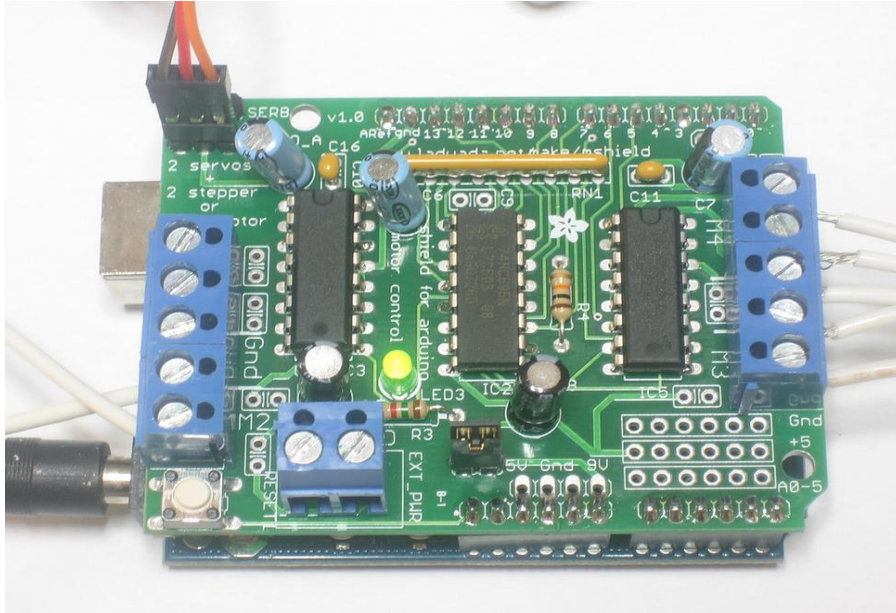

Figure 3: Adafruit's motor shield circuit.

Bluetooth is one of the popular devices to communicate in short range it is using on computers, cell phones, head phones and many other devices. Bluetooth has been invented by Ericsson Company in the 1994. Bluetooth devices use 2.4 to 2.5 GHz frequency to communicate with each other's. Bluetooth standardized as IEEE 802.15.1 but then it changed that 802.15.1 Bluetooth's range is about 2400–2483.5 MHz approximately. Bluetooth devices generally use frequency-hopping spread spectrum communication technique to communicate each other. It can have approximately 40 channels and signals hops 1600 hop per second. Bluetooth devices firstly search each other once one find other it shows device to its user if user decides to communicate with device he paired those two devices and starts communication. Bluetooth has several versions such as Bluetooth 2.0, Bluetooth 2.1, Bluetooth 3.0 and Bluetooth 4.0 which is used today. Bluetooth is gained new technologies after first released some of them are Enhanced Data Rate (EDR), Alternate MAC/PHY, low energy protocols etc. has been added

and used on the newer versions of Bluetooth devices. The protocols name can be varying in case of security, max speed, and bandwidth. Bluetooth's data transfer rate is about 25mbps after new update 4.0 this data rate directly related on hopping frequency earlier versions old Bluetooth could hops 800 per second. Connection with Bluetooth fairly easy as indicated before it is simply uses key matching process to connect each other and it requires and pair code between devices after it given devices connects each other. Security over Bluetooth is pretty good early versions of Bluetooth were encrypted to stop any attack coming from the outside and now they added key matching and pairing code. Bluetooth devices have a good search mechanism they can find other devices on the 30m range and they can connect with them. Bluetooth's power requirement is very low but it is range is low and it is not so fast connection. Maximum range of Bluetooth is like 30m and it can connect with 7 different devices it is called piconet. Bluetooth can make slave and master connection with different devices on this network Master waits for its slaves when a slave connect its network and paired with it master send data to them and waits for answer, master also make those device synchronal and communicate between them.

3.2.3. Motor

Small 3V DC Toy Motor for Arduino/Raspberry-Pi/Robotics

The Small 3V DC Toy Motor gives the mechanical throughput of 150 RPM simply used in different robotics purposes.

Features of Small 3V DC Toy Motor:

- Voltage: 3V to 6V.
- RPM: 150 rpm.
- These motors are normally used in toys, robotics purposes.

Type of motor:

- Small dc motor,
- 3v dc motor,
- 3v toy dc motor,
- Toy dc motor,
- Small dc motor for arduino,
- Small dc motor for quadcopter,
- Small 3v dc motor.

Figure 4 : motor driver

3.2.4. Package:

Different package at optional:
1. Retailing Package:Anti-static bag
2. Bulking Packing:Plastic Bag Package
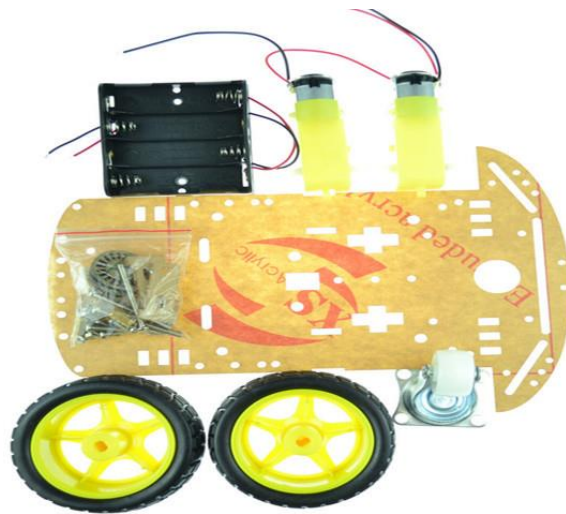3. Retailing Box package design according to your requirement(Order > 3000PCS)

Figure 5: component of car

Chapter

Four

CONCLUTION:

Comparing to the other technologies in agriculture, this system will help the farmer to do the work from whatever place they are. So that they can easily access the robot and do the operations. This paper designs a wireless system using arduino, sensor node as combination of sensors. So that the data will be analyzed transmitted and processed according to the voice command of the farmer which can be easily configured to run out the application. Since it is little high in cost but the outcome will more helpful for the environment. One best advantage in this system is low power consumption. Easy to handle, Flexible to wear and take to any places. But the distance of processing is smaller in this system.

FUTURE WORK :

1-Make it applied in real car.

2-Insert additional sensor to prevent it from clash.

3-Make it rotat with. spetial angle.

4-Using real voice instead of voice recorder and mobile.

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