IOT BASED WELCOME AND ASSIST SMARTRON

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ABSTRACT

Despite several successful humanoid robot projects from both industry and academia, generic motion interfaces do exist, but these are either hardware-specific designs or generic interfaces that support very simple robots (non-humanoids). Thus this project presents the overall design of the welcome robot using Arduino. The robot is programmed using Arduino IDE software. The Arduino program is later installed in the Arduino board and which will be operating with the help of mobile using the Bluetooth module.

Keywords: *Arduino, Bluetooth Module, ultrasonic sensor, dc motor, voice module.*

I. Introduction

Robots are rapidly integrating into human society and within the future; they're expected to coexist with humans in every home. The market for service robots that interact directly with humans is rapidly growing nowadays. In the future, it is expected that robots will be able to provide different type of services for humans such as security, hospitality, housekeeping, etc. Security guards are employees who are expected to deliver an appropriate response towards an event and keep the order in public spaces. Their job requires them to protect people from accidents and crime, as well as monitor, patrol, and inspect the property to protect against fire, theft, vandalism, and other illegal activities. The repetitiveness and frequencies of security patrolling services, when combined with the previously mentioned job requirements, result in high physical strain on the human body in addition to the operational risk conveyed in the profession.

II. Literature Survey

Soil moisture sensor, Arduino LCD screen servo motor is employed. The system has the potential to be useful during a water-limited geographically isolated area [1]. PIC16F877A microcontroller; moisture sensor relay and motor are used. Its implemented sensors which detect the humidity within the soil and provide water to the sector which has water requirement [2]. ESP8266 Module, Arduino Node MCU and sensors are used. The project aims at making agriculture smart using automation and IoT technology. The entire information about the agriculture field is shipped to the android application [3]. Arduino moisture sensors, the pump are employed. This irrigation system will reduce the hardship of farmers, save time and enhanced accuracy and effectiveness in minimal cost [4]. Arduino, Soil moisture sensor, L293D IC & DC motor are used. Within the modern system, plants are often easily monitored. For this implementation, Arduino UNO is employed [5]. Arduino, the soil moisture sensor is employed. Watering or irrigation is that the artificial application of water within the crops [6]. According to Sunilkumar [7], [8], [9] Electromagnetic Interference (EMI) is also known as radio frequency interference (RFI). It happens when one electromagnetic field interferes with another, resulting in both of them getting distorted. Electromagnetic compatibility has been part of both R&D and product development for a long time. EMI can also be conducted to the robot trough the power cord from all other equipment connected to the same power installation, which should be avoided. When a requirement for water was recognized by the sensor, microcontroller sent a sign to the pump to start out watering the plant [10]. Time's stamps and humidity levels are going to be recorded during a CSV file throughout the method using raspberry pi. Raspberry pi will then store this CSV file over the web [11]. This project uses an Arduino board, which consists of ATmega328 microcontroller. The system automation is meant to be assistive to the user [12]. The microcontroller has got to be coded to water the plants within the greenhouse about twice per day. The appliance of technology within the

areas of irrigation has proven to be an excellent help as they deliver efficiency and accuracy [13]. The concept of predicting the current status of the robot using temperature sensor, IR sensor and other sensors which is placed within the robot and made easier [14].The Internet-based security Soft-i-Robot is modeled using Soft computing paradigms for problem solving and decision-making in complex and ill-structured situations[15]. The model has sensory subsystems such as Intruder detection which, detects intruder, captures image and sends to server, and an Obstacle Avoidance can be done through analog and digital modulation [16].

III. Methodology

A diagram may be a diagram of a system during which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. Block diagrams are typically used for higher-level, less detailed descriptions that are intended to clarify overall concepts without fear for the small print of implementation.

Arduino AT Mega 328

ATmega-328 is essentially a complicated Virtual RISC (AVR) micro-controller. It's an open-source platform used for building electronics projects. Arduino ATmega328p may be a datasheet. it's 14 digital input/output pins(of which 6 are often used as PWM outputs),6 analog inputs, a 16MHz quartz, a USB connection, an influence jack, an ICSP header and a reset buttons. The ATmega 328 may be a single-chip microcontroller created by Atmel within the megaAVR family. it's a modified Harvard architecture 8-bit RISC processor core. The Atmel 8-bit AVR RISC-based microcontroller combines 32 kB ISP non-memory with read-while-write capabilities, 1kB EEPROM,2kBSRM,2general purpose I/O lines,32 general purpose working registers. These features contain advanced RISC architecture, good performance, low power consumption, real timer counter having separate oscillator, 6 PWM pins, programmable Serial USART, programming lock for software security, throughput up to twenty MIPS etc. ATmega-328 is usually utilized in Arduino. The further details about ATmega 328 are going to be given later during this section.

Figure 1: AT Mega328 AVR Microcontroller

Bluetooth Module : Bluetooth is that the name given to a replacement technology standard using short-range radio links, intended to exchange the cable(s) connecting portable and/or fixed electronic devices. the quality defines a consistent structure for a good range of devices to speak with one another , with minimal user effort. Bluetooth could even be utilized in home networking applications. With increasing numbers of homes having multiple PCs, the necessity for networks that are simple to put in and maintain, is growing. there's also the commercial got to provide "information push" capabilities, which is vital for handheld and other such mobile devices and this has been partially incorporated in Bluetooth. Bluetooth's main strength is its ability to simultaneously handle both data and voice transmissions, allowing such innovative solutions as a mobile hands-free headset for voice calls, print to fax capability, and automatically synchronizing PDA, laptop, and telephone address book applications.
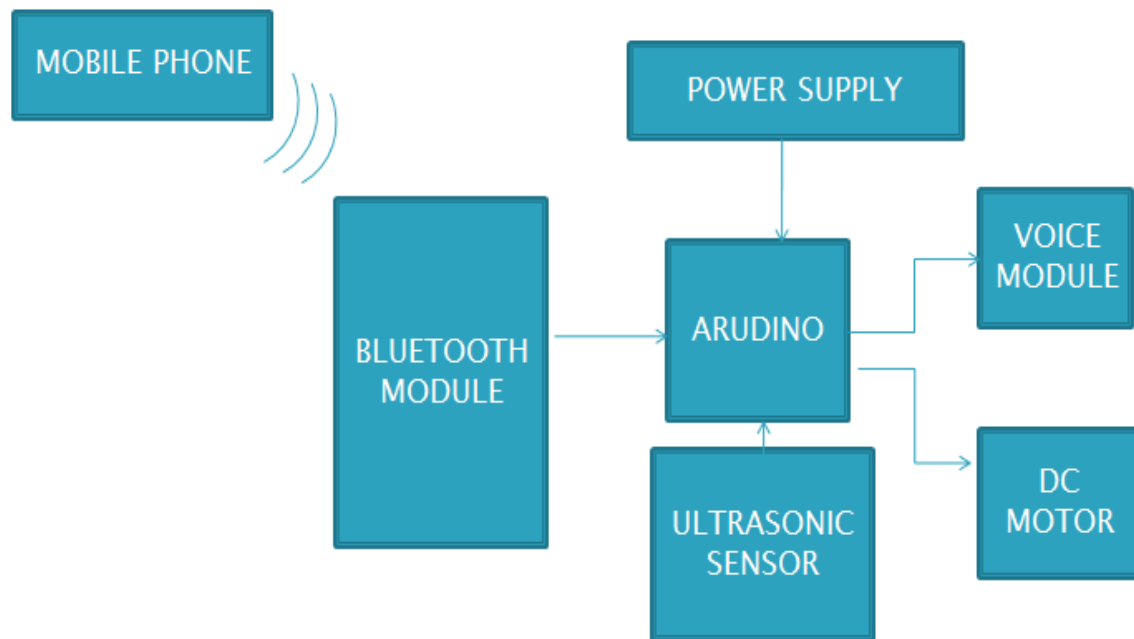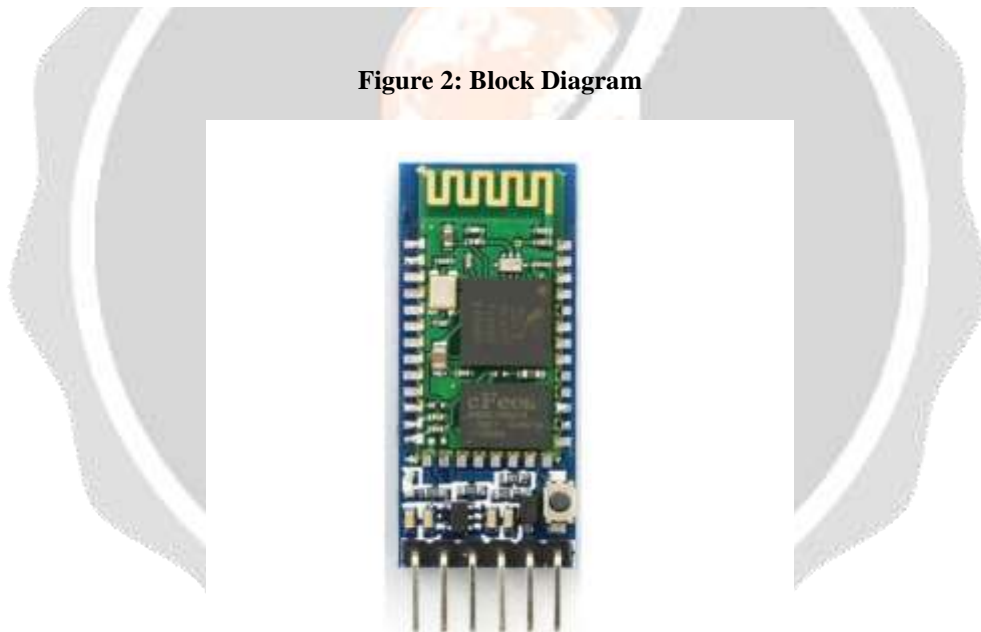
Figure 2: Block Diagram

Figure 3 : Bluetooth module

Sensors:

Ultrasonic sensor: An ultrasonic sensor transmits ultrasonic waves into the air and detects reflected waves from an object. There are many applications for ultrasonic sensors, like in intrusion alarm systems, automatic door openers and backup sensors for automobiles. amid the rapid development of data processing technology, new fields of application, like factory automation equipment and car electronics, are increasing and will still do so.

Using its unique piezoelectric ceramics manufacturing technology developed over a couple of years, Murata has developed various kinds of ultrasonic sensors which are compact and yet have very high performance. The knowledge contained during this catalog will assist you to form effective use of our ultrasonic sensors.

Figure 4: Ultrasonic Sensor

DC Motor:

 An electric motor is a mechanical device that converts electricity into energy. Most electric motors operate through the interaction of magnetic fields and current-carrying conductors to get the force. A DC motor is an electrical motor that runs on DC (DC) electricity. DC motors were wont to run machinery, often eliminating the necessity for an area external-combustion engine or combustion engine. Dc motors can operate directly from rechargeable batteries, providing the locomotion for the primary electric vehicles.
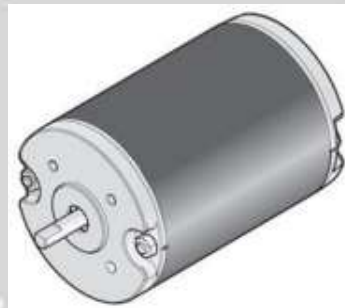

Figure 5: DC Motor

DC motors are found in applications as small as toy and disk drives, or in large sizes to work still rolling mills and paper machines. Modern Dc motors are nearly always operated in conjunction with power electronic devices.

IV. Conclusion

The project uses Arduino for functioning and this is the cheapest model later we can update the project with an advance mode of Arduino and introduce new functions to the project with a high cost of expense.

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