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Moder AgricultureWith Auto Pet Fedder System

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Abstract- The idea for this generated from following

Choice of technology: - The project is based on Arduino uno and IoT technology. We have used automated cowshed and assistant for famers. We have been choosen this technology to make the work automated and easy for famers.

Eco friendly: - Customer and authorized person get the acknowledge through the sms on mobile thus use of paper is avoided so deforestation is avoided and also avoid the use to pen for entering the data so the use of plastic is also reduced which is hazardous to nature.

Best use available resources:- Due to use of Arduino uno and IoT it is fully automated. Automatic pet feeding system features machine which can feed pets automatically.

Social impact of project:- It is invented to give the famer an assistant. As we know farmers and agriculture is India's biggest power. So it agriculture system will be improved. Our India in agriculture field also get improved. For this the automated and modern agriculture is very useful for our farmers. So they can get more time to make agriculture system well and good get more time to make agriculture system well an good. This will help to improve the Indian agriculture system, utilize the resources very greatly and it is step towards Digital India"

Functionality: - It is fully automated system works on Arduino and IoT .when process is started, food from motor is automatically down in front of animals. Water pumps are used to supply the water to the cowshed to clean the cowshed and other one is supplied to the farm. With the help of moisture sensor, water in the soil can be identified .temperature and humidity sensor senses the soil and all information regarding is notified to the farmer through IoT on the farmer's mobile. This makes all the work automated and easy.

User friendliness: -In the project messaging / notification system is used to get all information about farm in absence of farmer and also feed the animals or pet in absence of farmer and farm work easy.

Aesthetic & completeness of project:-This system is implemented to reduce the human work and modify the cowshed according to technology. Project is executed as per our aim and we have completed its presentation using project demo

Power requirement- Arduino-5v , Nodemcu-3.3v, 4channel relay-5v , power supply-230.

Keywords- Arduino and IoT ,

I.INTRODUCTION

Now-a-days most of the farmers are fascinates to have animals to their farm like cows, buffaloes , goats ete in their fan. The work is about the modem agriculture with auto pet feeder system. So that the farmers would get an assistant. It can save their time and work manage their a work through very efficient way.

In modern agriculture we have used sensors to sense the quality of soil. Modem agriculture is based on Arduino and IoT. Through this all the work are done automatically through Arduino and IoT. It is fully automated cowshed system works on Arduino and IoT. In this system, we have implemented automatic system such as automatic feeder for food of animals, temperature and humidity measurement present in the soil, water supply to farm and cowshed. This system is user friendly as any one can easily handle this system without any training.

II. PROBLEM STATEMENT

In the increasing agriculture activity in India ,there is no smart facility and assistant to make farmer and agriculture system developed .

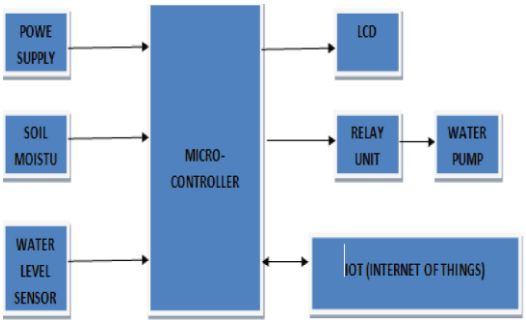
III . OBJECTIVES

1. The objective of the project is to create an automatic feeder system to feed pets and assistant for farmers.
2. The project is designed keeping the view of dairy farm poultry farm and agriculture system.

3. Vital principle of this project is to make work of farmer not only easy but also automated so that farmer has not to do any manual work time to time.

IV. BLOCK DIAGRAM

Standby generation system is designed so as to never electrically interconnect or operate in parallel with the utility system. An interconnected generation system is any generator or generation system that can parallel (or has the potential to be paralleled via design or normal operator control), either momentarily or on a continuous basis, with the utility system.



V. WORIKING

It is fully automated cowshed system works on Arduino and IoT. Here we have made assistant for farmers. Here when the process is started and when the motor are started then food from the motor is automatically down on conveyer belt in front of animals. The conveyer belt rotates and food is supplied to every animal and through the belt at the end the waste is collected at one place and further used as fertilizer. We have used two water pumps. From that on is supplied to cowshed to clean cowshed and other one is supplied to the FAM. With the help of moisture sensor, water in farm or soil can be identities. Temperature, humidity und moisture sensor senses the soil und all the information regarding is notified to the farmer through IoT on the farmers mobile. This makes all the work automated and easy.

IOT :- the describes the network of physical objects-"things"-that are embedded with sensors, software internet of things (IoT) and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.

VI. SOFTWARE USED

1.Blynk app

VII. COMPONENTS USED

1. Arduino uno
2. Servo motor
3. Soil moisture sensor
4. Node mcu
5. Temperature sensor
6. Dc motor
7. Four channel relay
8. Water pump
9. Adaptor

VIII. COMPONENT DESCRIPTION

1. Arduino **uno**

The Arduino uno is an open-source microcontroller board based on the microchip atmega 328P microcontroller and developed by Arduino . The board is equipped with sets of digital and analog input'/output (I/O) pins that may be interacted to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of pwm output). 6 analog I/O pins. And is programmable with the Arduino IDE (integrated development environment). Via a type b USB cable. It can be powered by the usb cable or by an external 9-volt battery, though it accepts voltages between 7 and 20 volts.

Pin functions:

1. Led: There is a built-in led driven by digital pin 13. When the pin is high value, the fed is on, when the pin is low, it is off.

2. Vin: The input voltage to the Arduino board when it is 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.

3. 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 - 20v), the usb connector (5v), or the VIN pin of the board (7-20v). Supplying voltage via the 5v or 3.3v pins bypasses the regulator, and can damage the board.

4. 3v: a 3.3 volt supply generated by the on-board regulator. Maximum current draw is 50 mas.

5. Gnd: Ground pins.

B. Node mcu

Node mcu is a low-cost open source IoT platform. If initially included firmware which runs on the esp8266 wi-fi soc from express if systems, and hardware which was based on the esp-12 module .later, support for the esp32 32-bit mcu was added. Node mcu is an open Source firmware for which open source prototyping board designs are available.

The name "node mcu" combines "node" and "mcu" (micro-controller unit). Node mcu is an open-source firmware and development kit that helps you to prototype or build IoT produces. It includes firmware that runs on the esp8266 wi-fi soc from expressive systems, and hardware which is based on the esp-12 module Mcu stands for microcontrollers unit which really means it is a computer on a single chip. A microcontroller contains one or more CPU's (processor cores) along with memory and programmable input/output peripherals. They are used to automobile engine control, implantable medical devices, remote controls, office machines, appliances, power tools, toys etc.

C. 4 channel relay

This is a 5v 4-channel relay interface board, and each channel needs a 15-20ma driver current. It can be used to control various appliances and equipment with large current. It is equipped with high-current relays that work under AC 25ov 1oa or dc30v 10a.or dc30v 10a it has a standard interface that can be controlled directly by microcontroller. It works on the principle of an electromagnetic attraction. When the circuit of the relay senses the fault current, it energizes the electromagnetic field which produces the temporary magnetic field. This magnetic field moves the relay armature for opening or closing the connection.

Features:

1. 5v 4-channel relay interface board, and each one needs 115-20ma driver current.
2. Optical isolation on each channel
3. Standard interface that can be controlled directly by microcontroller (raspberry pi, Arduino, 8051, avr, pic, dsp, arm, arm, msp430) ttl logic.

D. Soil moisture sensor

Soil moisture sensor measure the volumetric water content in soil since the direct gravimetric measurement of free. Soil moisture requires removing drying and weighing of a sample, soil moisture sensors measure the volumetric water content indirectly by using some other property of the soil, such as electrical resistance, dielectric constant or interaction with neutrons as a proxy for the moisture content. The relation between the measured property and soil moisture must be calibrated and may vary depending on environmental factors such as soil type, temperature, or electric conductivity reflected microwave radiation in attested by the soil moisture and is used for remote sensing in hydrology and agriculture portable probe instruments can be used by farmers .
Soil moisture sensors typically refer to sensors that estimate volumetric water content another class of sensors measure another property of moisture in sores call water polenta.

E. Temperature and humidity

The digital temperature and humidity sensor dht 11 is a composite sensor that contains a calibrated digital signal output of temperature and humidity sensing technology are applied to ensure that the product has high reliability and excellent long-term stability. The sensor includes a resistive sense of wet component and temperature measurement device and is connected with a high - performance 8-bit microcontroller.

F. Dc motor

A dc motor is any of a class of rotary electrical motors that converts direct current electrical energy into mechanical energy. The most common types rely on the forces produce by magnetic fields. Nearly all types of dc motors have some internal mechanism, either elctromeclanical or electronic, to periodically change the direction of current in part of the motor. Dc motors were the first form of motor widely use, as they could be powered form existing direct-current lighting power distribution systems. A dc motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings. Small dc motors are used in tools, toys, and appliances.

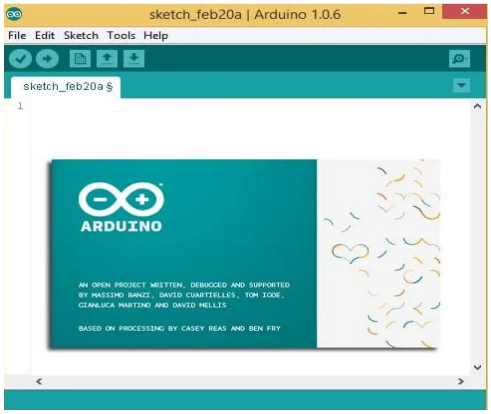
G.Servo motor

A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors.
Servo motors are not a specific class of motor, although the term servo motor is often used to refer to motor suitable for use in a closed-op control system. A servo motor its d closed-loop system. A servomotor is a closed-loop s servomechanism that uses position feedback to control its motion and final position. The input to its control is a signal (either analogue or digital) representation the position commanded for the output shaft.

IX. DESCRIPTION OF SOFTWARE

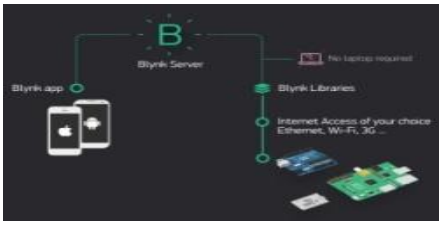
A. Arduino ide

The Arduino integrated i environment (ide) is cross-platform application (for windows,macos, linux)that is written in functions from c and c++ it is used to write and upload programs to Arduino compatible boards , but also, with the help of third-party cores other vendor development boards .the source code for the ide is released under the gnu general public license version 2.the Arduino ide supports the languages c and c++ using special rules of code structuring the Arduino ide supplies a software library from the wiring 1720 control which provides many common input and output procedures. The Arduino ide employs the program 1720 not to convert the executable code into a text file in hexadecimal encoding that is loaded into the Arduino board by a loader program in the boards.



B. Blynk app

Blynk is a new platform that allows you to quickly build interfaces for 1720 controlling and monitoring your hardware projects from your android device. After downloading the blink app, you can create a project dashboard and arrange buttons sliders, graphs and other widgets on to the screen. Using the widgets, you can turn pins on and off or display data from sensors.



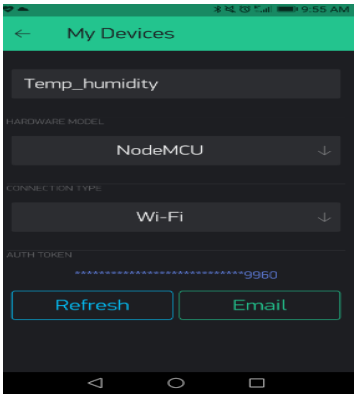
Process:-

To receive temperature and humidity data from dht sensors on blynk app. Download and install the blynk ay from (Google play store) log in to blynk app using your email id and password if you don't have an account create one

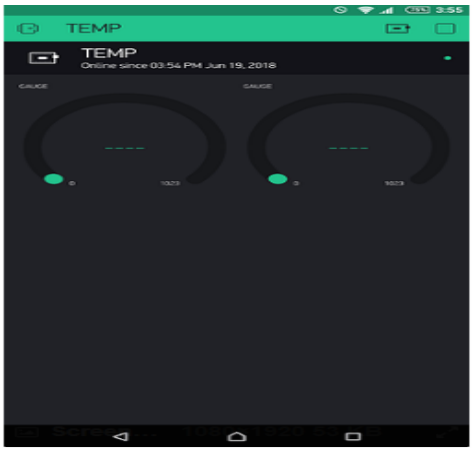
1. After sign up click on "new project' to start.

2. Now give name to the project and choose your board. As, have selected node mcu

3. after these steps click on "create button to form your project.



4. Now. Add widgets to the project by clicking on add button (plus sign).
5. Choose widget to add on the blynk app dashboard.



6 .now provides a name to the widget by edit the settings. Also, select the pin for the 'output' and give names to on /off label now, open Arduino ide.

Copy the example code for dht11 with node, mcu from the link then paste and run into Arduino ide Programming explanation The complete code for the project is given at the end now; include the required libraries for blynk, esp8266 and dht11.

```
#define blynk print serial
#include<esp8266wifi.h>
#include<blynkssimpleesp8266.h>
#include <" diht. H>
```

Enter the auth token in the code, which is send to your email (as shown in the below image) or yau can also check in the project setting of the blynk app.

X. ADVNTAGES

1. It helps to reduce human work.
2. Easy and efficient use.
3 .less times required.
4. User friendly setup.
5. Reliable system.

XI. FUTURE SCOPE

In future in can more automated and drone irrigation can make agriculture more automated.

XII .APPLICATIONS

1. This system is used in our own farms and cowshed.
2. It is also used in animal husbandry.
3. Real time operating system.

XIII .CONCLUSION

Modern agriculture with auto pet feeder system is planned to ensure automated cowshed for farmers in which all information of farm is sent to farmer on time to time in absence of farmers.

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