PET FEEDER USING BLUETOOTH

Submitted by

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Introduction to IOT

19ECE101

INTRODUCTION:-

- Automatic pet feeder is one of the new technologies for feeding pet. It will help pet owner to take care of their pet while they are not at home. Even the owners are not at home, they still can feed their pet. Automatic pet feeder is built to help pet owner taking care of their pet. IoT pet feeder is one of the pet feeders that will be controlled by a mobile application through internet. The automatic pet feeder will automatically dispense predetermined amount of food and water to the bowls. As pet lovers, user should understand those pets also need a proper diet management. Whether user away from home unexpectedly or simply would like one less chore to worry about, user can feel secure that the beloved pet will be cared for and fed on time every time. The Automatic pet feeder will solve two problems which pet owners face i.e., making sure that each pet has access to a healthy amount of food throughout the day, regardless of the owner's schedule.

Making sure that each pet eats only its own food though there are a variety of products on the market which solve the first problem, there are none which address the second. The automatic pet feeder will give pet owners a solution to both problems, thereby improving the lives of both pets and owners by allowing the owner to reliably provide food to a pet at the time the owner wishes and keep the pet from reaching the food stored for later feedings. Many animal feed systems can be designed to function as an automatic device that allow the user to feed whenever he wishes from anywhere through internet. The purpose of having sensors in a system like this is to automate the feed process completely with less human interference.

METHODOLOGY:-

Automatic Pet Feeder using Arduino Uno will feed the pets whenever the owner wishes. With the press of a button from anywhere in MIT app mobile application through Bluetooth the user can feed their pet. This system is very user friendly. Dispensing mechanism consists of a container that acts as storage for the food, Servo motor to mechanize the dispensing action and a Bluetooth module to control the motor via mobile.

Components and Software Used :-

1.Arduino Uno

2.Bluetooth Module

3.Servo Motor

4.Connecting Wires

5.Container

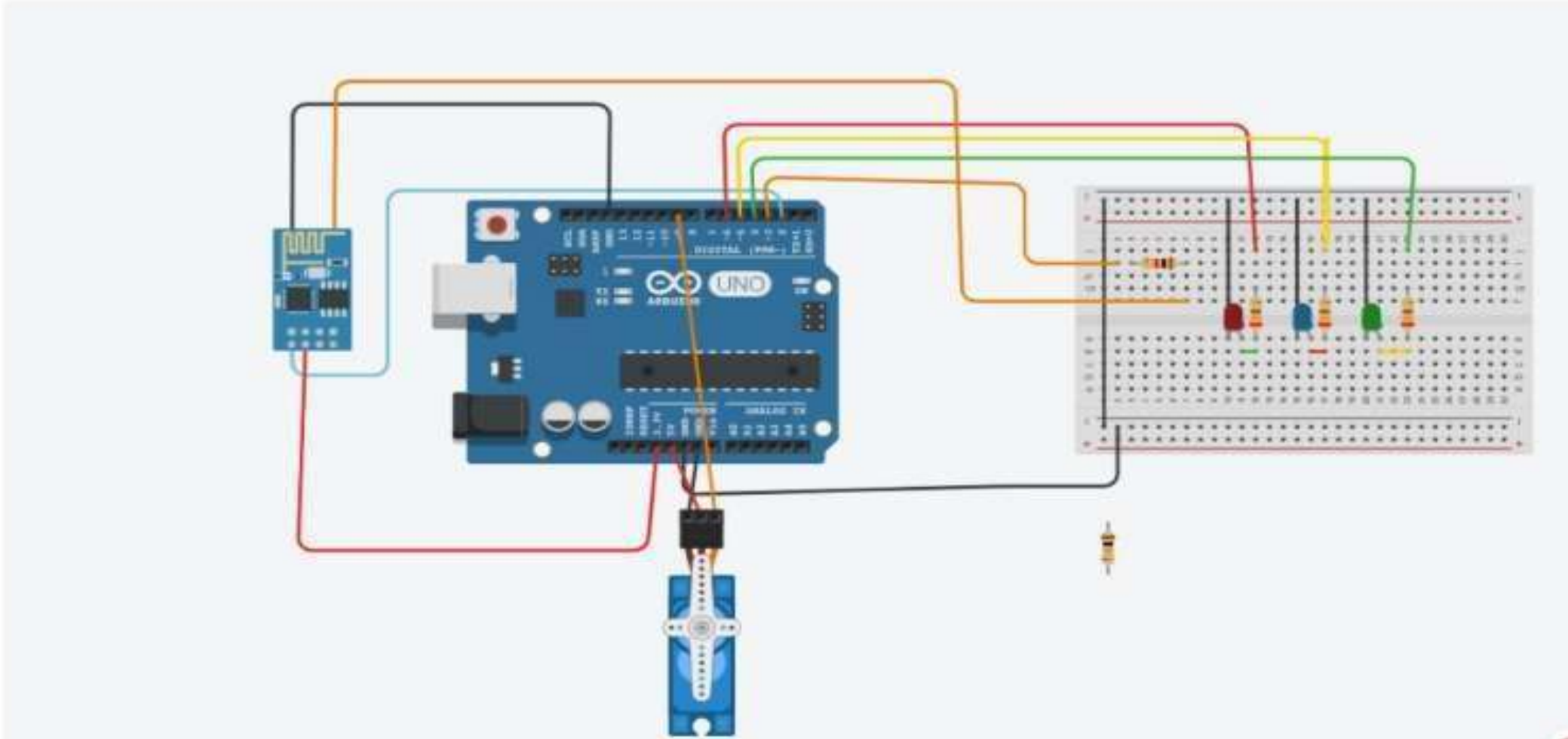
6.Stand for supporting container

7. Arduino IDE

8. MIT APP INVENTOR

Technical Aspects: -

- The construction of Automatic Pet Feeder requires mainly 4 components namely, Arduino Uno, Servo motor, Bluetooth terminal and Connecting wires. Firstly, we develop a source code to interface the Arduino Uno with servo motor and Bluetooth terminal. Once the source code is developed we proceed with circuit connections, we make connections as per the circuit diagram show down below: -



Source Code: -

```ino
#include <Servo.h>
#include <SoftwareSerial.h>

Servo myservo;  // create servo object to control a servo
SoftwareSerial bluetooth(2, 3); // RX, TX pins for Bluetooth module

int pos = 0;    // variable to store the servo position
int feedTime = 1000;  // time (in milliseconds) to open the food dispenser

void setup() {
  myservo.attach(9);  // attaches the servo on pin 9 to the servo object
  bluetooth.begin(9600);  // initialize Bluetooth module with baud rate of 9600
}

void loop() {
  if (bluetooth.available()) {  // if there is data available from the Bluetooth module
    char data = bluetooth.read();  // read the data
    if (data == 'F') {  // if the data is 'F' (for feed)
      myservo.write(180); // set servo to 90 degrees to open the food dispenser
      delay(feedTime);  // wait for specified feed time
      myservo.write(0);  // set servo to 0 degrees to close the food dispenser
      bluetooth.write("Feed completed"); // send confirmation message to Bluetooth module
    }
  }
}
```

MIT APP INVENTOR:

a) For the app, first we started a new project in MIT app inventor.

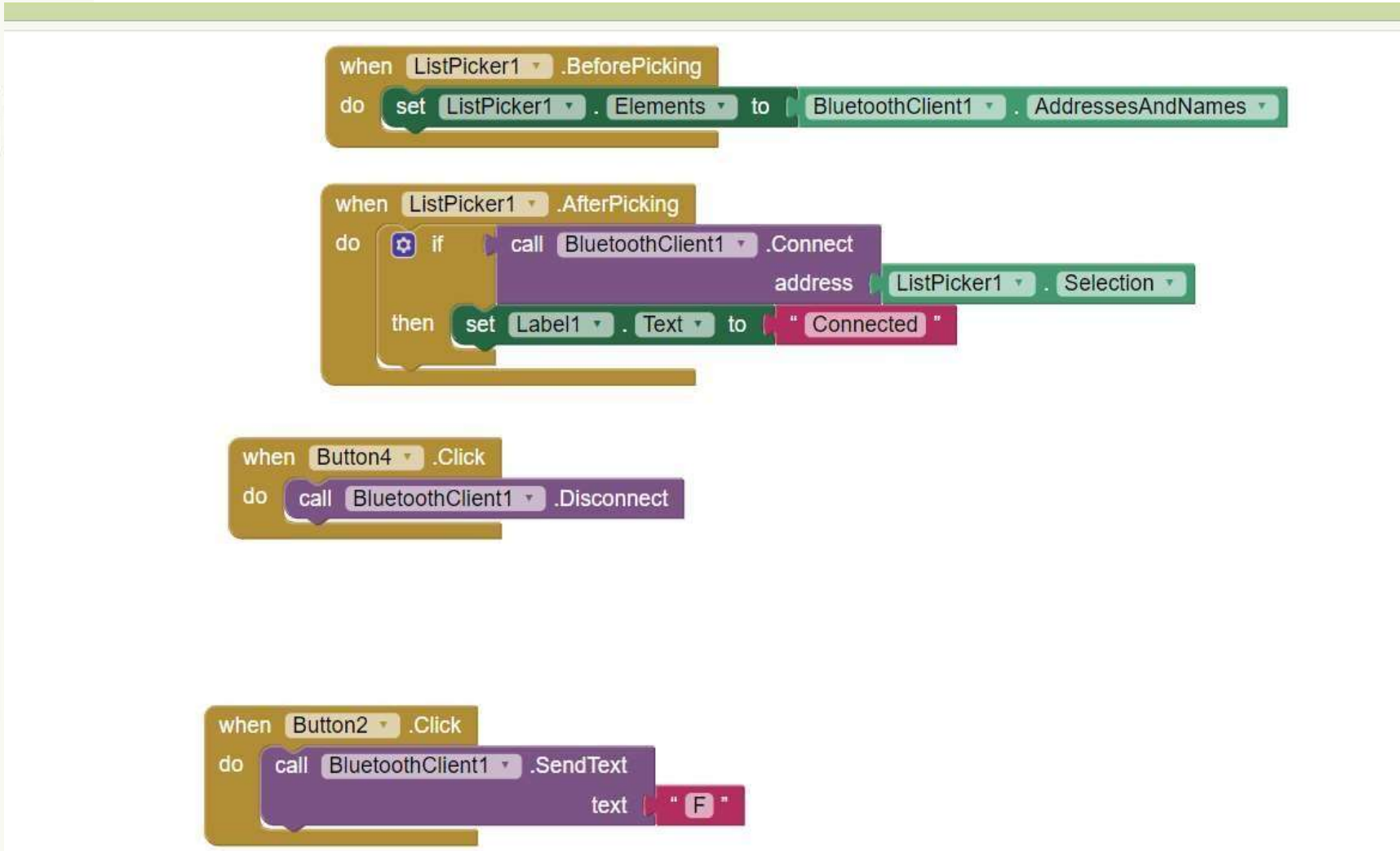
b) First we created a text label keeping the title as “FEEDING MACHINE”.

c)Next we create a button for Scanning the available bluetooth devices, so that we can connect our bluetooth module.

d) We also create a button for disconnecting the bluetooth device.

e)Next we create a button for Feed, which will start the servo motor when clicked.

- f) The blocks that are used in the app is in the following image.



Result:

- When the letter ‘F’ is entered on the bluetooth Terminal app, or Feed is pressed in the MIT APP INVENTOR, the flap attached to the servo motor rotates about 180 degrees making the pet food from the container to fall in the dish.

Merits:-

a)Feeding of pets wirelessly without even going near the pet.

b) Better timely input of the pet food into the dish.

c)Pet food can be just kept in the can and we just press feed in the MIT app so that the food can fall into the bowl, no other manual work is needed.

d)The power supply can be any battery source which can be inserted in the 5V point in the Arduino board

e) The data is loaded in the Arduino, so no new data is required for this smart device, just a power source is enough.

Demerits and ways of rectification:-

a)The pet can damage components of the mechanism resulting in malfunctioning or absolutely no output. It can be solved if the components are kept at a height where the particular pet cannot reach. Also the quality of the stand and the container should be good.

b)As this is just a prototype, the components used are old plastic bottle and a container flap for the opening and closing of the device, durable and better container can be used in the long run.

c)The wireless technology used is Bluetooth, which has a specific range and cannot work outside that, we can solve this problem by using the internet technology, or even timely function technology when the owner is not home

CONCLUSION:-

A pet can have an adequate sustainable diet timely, even if the owner is not near and available for the pet. This machine can work by a press of a button in an app, when the food is kept in the container. We can also modify this machine by adding timely functions when the owner is far away.

FUTURE SCOPE:-

- To make this pet feeder an ideal machine, we can interface it with a wifi/internet, so that it can be operated even when the owner is in a different city.
- Better components and covering can be used which will be durable in the long run and can be protected from pets.
- Timer can be used in case the owner forgets, and if the pet is fed once, the timer can go off.