Name: Shashank Bagda	Roll Number: 92100133020
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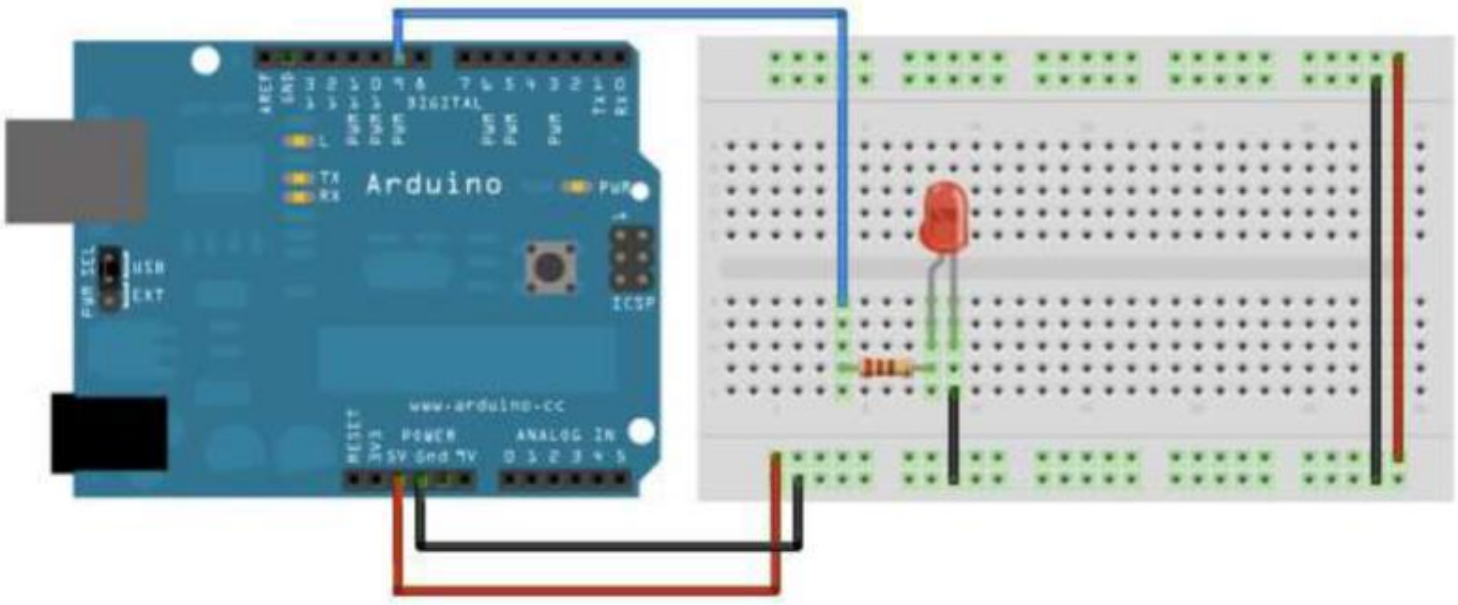
Task: Interfacing of LED and Buzzer to understand the concept of PWM concept using the Arduino Board.

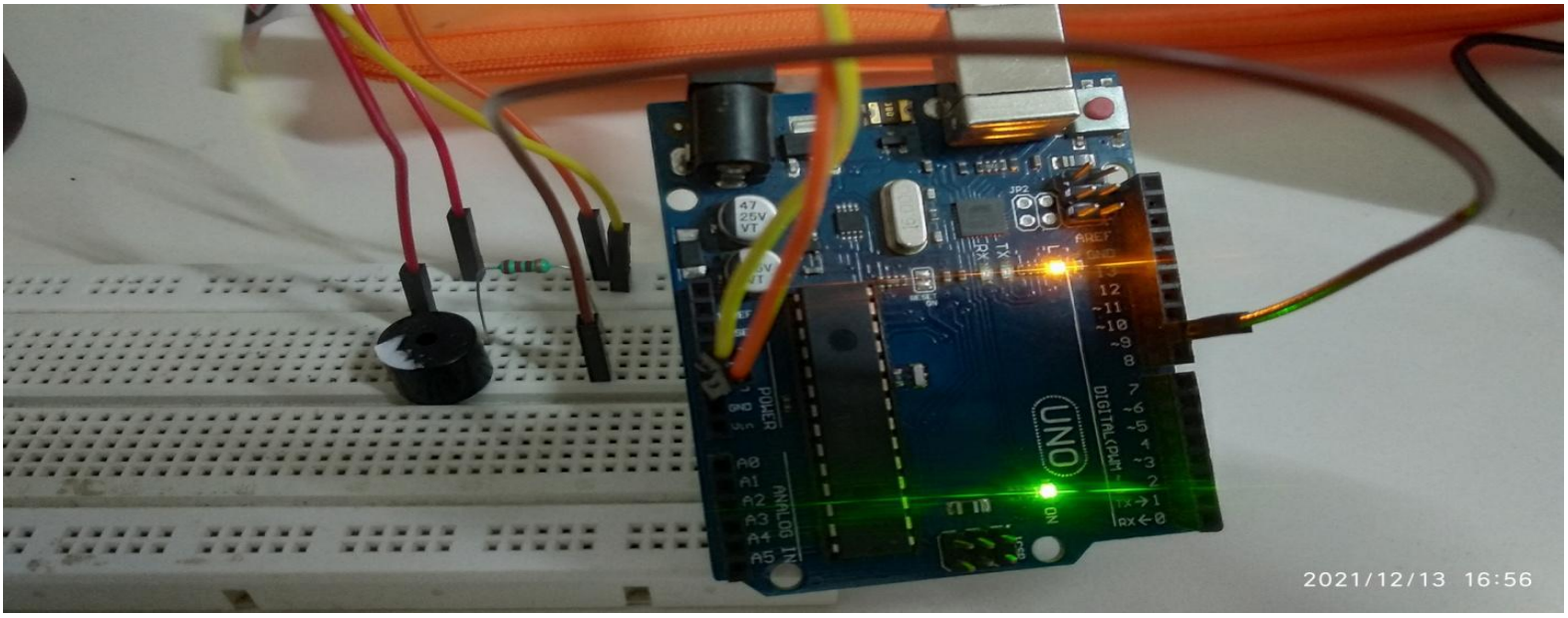
Components:
Arduino Uno, Breadboard, Jumper Wire, Led, Buzzer, Data Cable

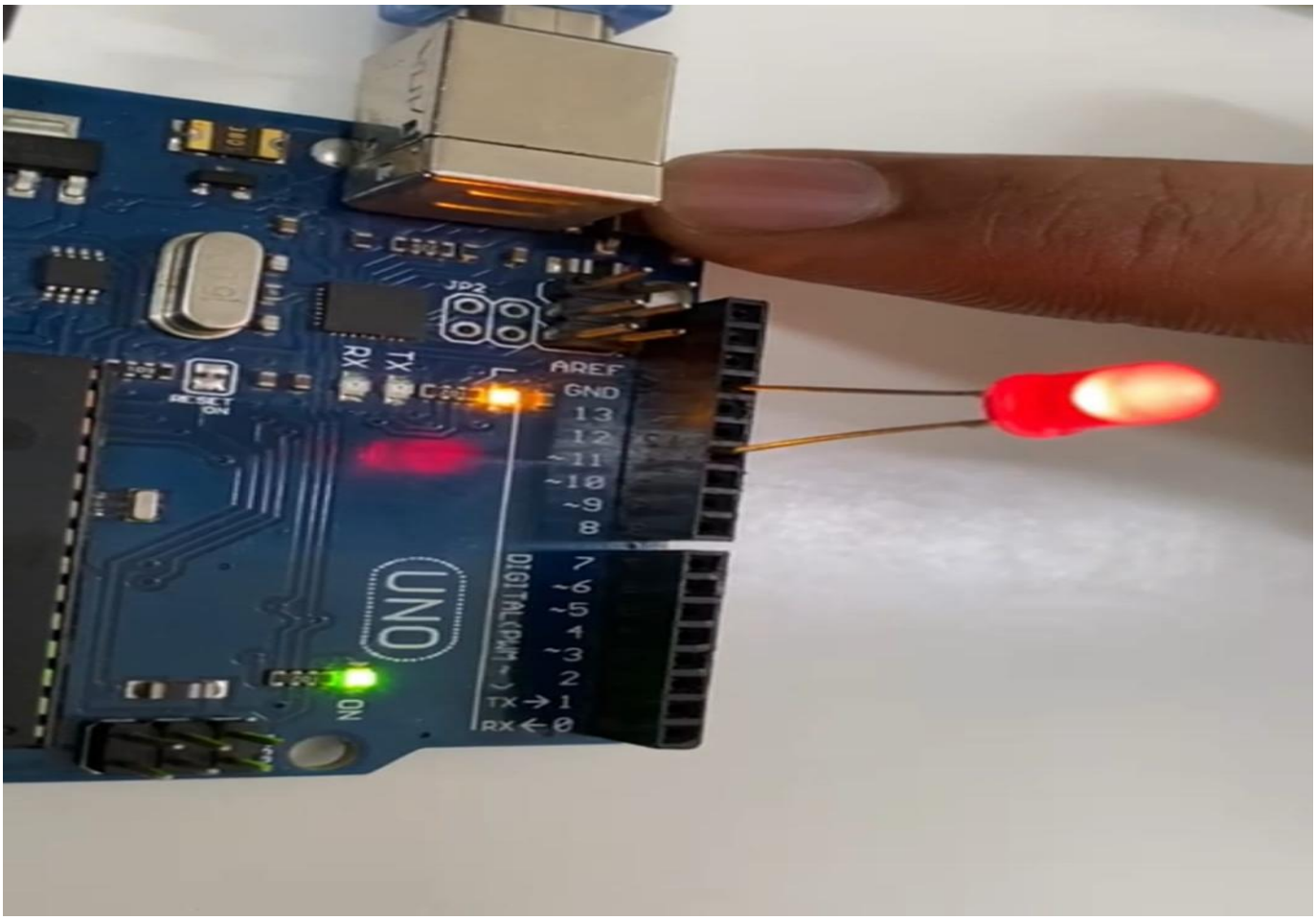
About the Project:
In this project we are going to interface the PWM pin which means the Pulse Width Modulation pin present on the arduino board. There are total 6 PWM pin. They are D3, D5, D6, D9, D10 and D11. By using the PWM we are able to observe the intensity increasing and decrease of the LED brightness. This same concept is applied to the buzzer the only difference is to replace the led with the buzzer. By varying the code to the duty cycle of PWM we can see the gradual increment or decrement in the brightness and same way in buzzer, we can observe the increment and decrement in the sound volume of the buzzer. Follow the given Pin configuration and code to get the required output.

Schematic:



Output: (your circuit implementation and its working photo)





Code:

For Buzzer :

```
int LED_Pin = 9;
int duty_cycle_value = 1;
void setup(){
pinMode(LED_Pin,OUTPUT);
}
void loop(){
while(duty_cycle_value<255)
{
analogWrite(LED_Pin,duty_cycle_value);
delay(3000);
duty_cycle_value++;
}
}
```

For LED :

```
int LED_Pin = 11;
int duty_cycle_value = 1;
void setup(){
pinMode(LED_Pin,OUTPUT);
}
void loop(){
while(duty_cycle_value<255)
{
analogWrite(LED_Pin,duty_cycle_value);
delay(3000);
duty_cycle_value++;
}
}
```

Application:

This project can be utilize in many different ways such as The devices where we want to increase the intensity of any component gradually. One example is the security alarm use in police station or a jail which gradually increases the intensity of the sound and at the end they are the peak and can produce a very large sound to alert the nearby people or animals. This type of sirens can be used in the zoo if any animal came out of the cage then using this type of things we can alert the nearby people and everyone can move to a safe place.

Conclusion:

By completion of the following task we came to know the use and difference between the normal digital pin and the PWM pin present on the Arduino UNO board. We can utilize this follow project in many ways. By following the given code and schematics we can easily get the required output and can implement it in our complementary projects. Thank you.

Your Sincerely,
Shashank Bagda