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**Class**: MSc Computer Science (Part 1)

**Roll No**: 512

**Semester**: II

**Subject**: Advanced Embedded Systems

**Topic**: Creating a circuit using Multiple Components using Tinker Cad (Internal 2)

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# Arduino Code

```cpp
#include <Keypad.h>
#include <Servo.h>
// Four rows
const byte ROWS = 4;
// Four columns
const byte COLS = 4;

// Define the key map
char keys[ROWS][COLS] = {
  {'1', '2', '3', 'A'},
  {'4', '5', '6', 'B'},
  {'7', '8', '9', 'C'},
  {'*', '0', '#', 'D'}
};
// Assigning pins for Rows 0 to 3
byte rowPins[ROWS] = {9,8,7,6};
// Assigning pins for Columns 0 to 3
byte colPins[COLS]= {5,4,3,2};
// define LED state
byte ledState = LOW;

Keypad keypad = Keypad(makeKeymap(keys), rowPins, colPins, ROWS,
COLS); // Initialize the keypad

// Create a servo object to control the servo motor
Servo myservo;

// Initialize the servo position
int pos = 0;

void setup() {
  // Set pin 13 as output to control the LED
  pinMode(13, OUTPUT);
  // Set pin 11 as output to control the buzzer
  pinMode(11, OUTPUT);
  // Attach the servo to pin 10
  myservo.attach(10);
}

void loop() {
  // Read the pressed key
  char key = keypad.getKey();

  //Code for LED
```
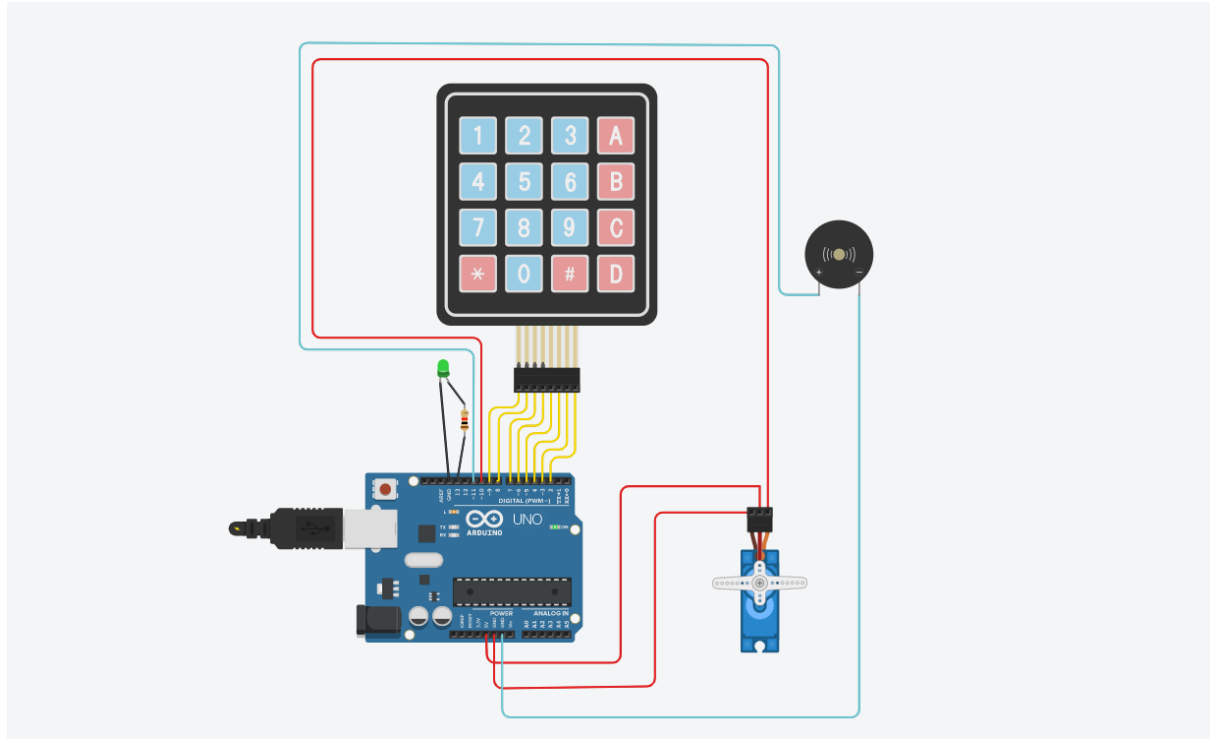
```
if (key == '1') {
  ledState = (ledState == HIGH) ? LOW: HIGH;
  digitalWrite(13, ledState);
}


//Code for buzzer
if (key == '2') {
  // If key 2 is pressed, it triggers the buzzer
  tone(11, 1000);
  delay(100);
}
if (key=='5') {
  // If key 5 is pressed, stop the buzzer
  noTone(11);
}


//Code for Servo Motor
if (key == '3') {
  // If key 3 is pressed, move the servo to position 180
  myservo.write(180);
  delay(100);
}
if (key=='6') {
  // If key 6 is pressed, move the servo to rest position
  myservo.write(0);
  delay(100);
}
}
```

# Circuit Connection:



# Schematic Representation:



Made with Tinkercad®

Title:  AES Mini Project

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