MICROCONTROLLER AND MICROPROCESSOR (2EC404)

CALCULATOR USING ARDUINO

REPORT

## Submitted By:

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INTRODUCTION:

Arduino calculator is a project that uses an Arduino microcontroller to build a simple calculator that can perform basic arithmetic operations such as addition, subtraction, multiplication, and division. The project involves building the hardware and programming the software necessary to operate the calculator.

The hardware required for building an Arduino calculator includes an Arduino board, a keypad, an LCD display, and some wires to connect them all together. The keypad is used for inputting numbers and mathematical operations, while the LCD display is used to display the results of the calculations.

To program the calculator, one needs to write the code that allows the microcontroller to read the input from the keypad and perform the calculations. The code should be designed to handle errors and ensure that the calculations are performed accurately.

 BLOCK DIAGRAM:
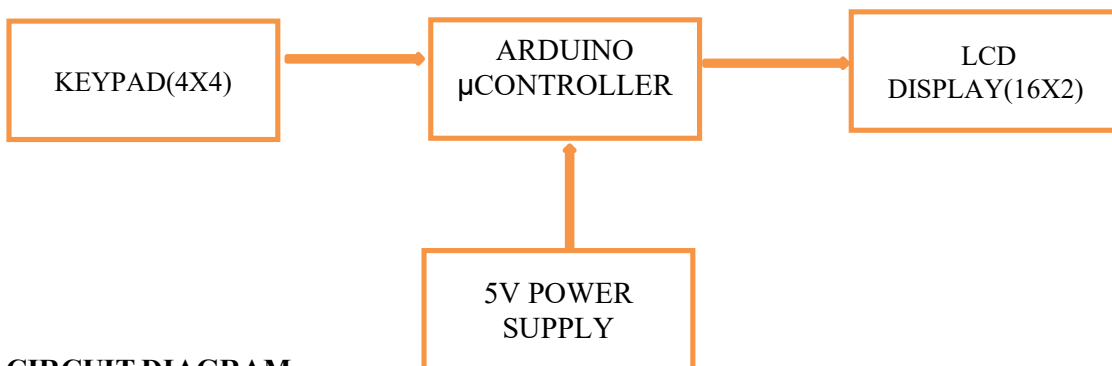
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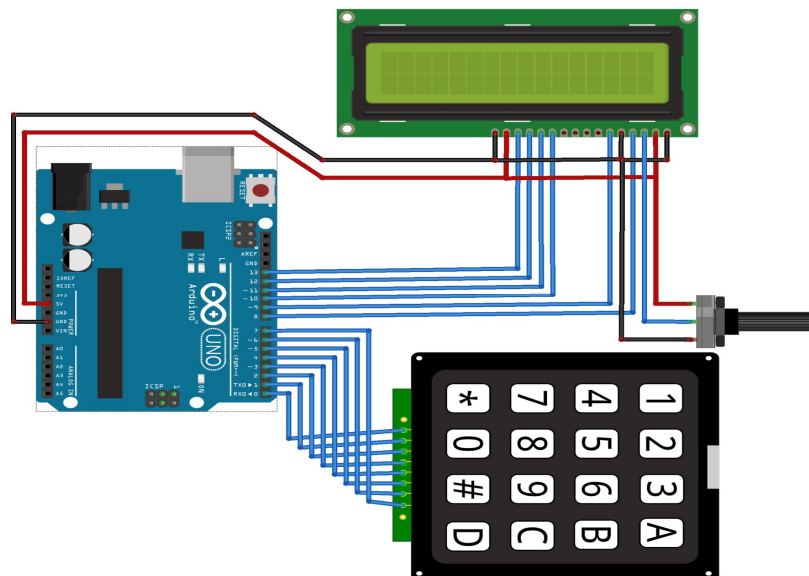
WORKING:

An Arduino calculator can be created by writing a program that reads user input from buttons or a keypad, performs mathematical operations on the input, and displays the result on a screen or other output device.

General steps for creating an Arduino calculator:
1. Set up the hardware: Connect a keypad or buttons to the Arduino board, and connect an output device (such as an LCD screen) to display the results.
2. Define the input: Determine how the user will input numbers and mathematical operations. This can be done through a keypad or a s eries of buttons.
3. Define the mathematical operations: Determine how the calculator will perform addition, subtraction, multiplication, and division. This can be done using basic arithmetic functions provided by the Arduino programming language.
4. Write the program: Use the Arduino programming language to write a program that reads user input, performs the appropriate mathematical operation, and displays the result.
5. Test the program: Upload the program to the Arduino board and test it by entering various numbers and mathematical operations. Make any necessary adjustments to ensure that the program is working correctly.
Overall, creating an Arduino calculator involves combining hardware components with software programming to create a functional tool for performing mathematical calculations.

ASSUMPTIONS

CHARACTER ON KEYPAD	ASSUMED TO BE
A	ADDITION(+)
B	SUBTRACTION(-)
C	MULTIPLICATION(*)
D	DIVISION(/)
*	CLEAR(C)
#	EQUALS(=)

RESULT
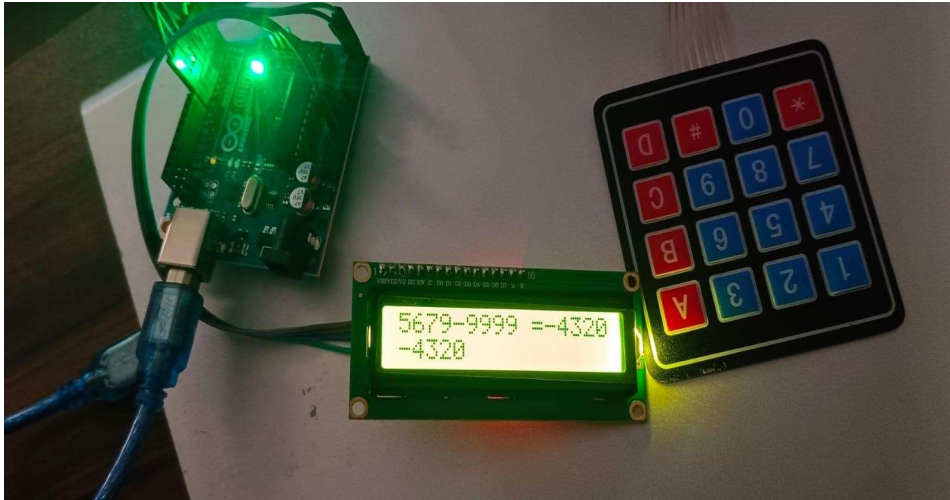
COMPONENTS REQUIRED

SR.NO	COMPONENT	Type	QUANTITY (PIECE)
1.	ARDUINO BOARD	Atmega328p (UNO)	1
2	4X4 KEYPAD	Push type	1
3	LCD DISPLAY	16X2 WITH I2C MODULE	1
4	CONNECTING WIRE	MALE TO MALE	AS PER REQ.

COMPONENTS BILL

Sr No	Component	RATE	QUANTITY(PIECE)
1	ARDUINO BOARD	580	1
2	4X4 KEYPAD	50	1
3	LCD DISPLAY	230	1
4	CONNECTING WIRE	50	AS PER REQ.
TOTAL		910/-	

APPLICATIONS:

An Arduino calculator can have multiple applications, including its use as an educational tool for teaching basic arithmetic operations in a classroom setting. Additionally, it can be integrated intoDIY projects, such as robots, home automation systems, or other automation projects that require mathematical calculations. With its versatility and ability to perform mathematical operations in real-time, an Arduino calculator can be used in a variety of innovative projects to make them more efficient and user-friendly.

CONCLUSION:

In conclusion, an Arduino calculator is a useful tool that can be utilized for various applications, ranging from educational to DIY projects. It allows for real-time mathematical calculations, which makes it an efficient component to integrate into various automation projects. The calculator is versatile, cost-effective, and user-friendly, making it an excellent choice for hobbyists and professionals alike. With its ability to perform basic arithmetic operations, an Arduino calculator can serve as an essential tool for students, engineers, and designers to streamline their work and enhance their productivity. Overall, Arduino calculatoris a valuable tool that has numerous applications and is worth considering for anyone who requires mathematical calculations in their projects.