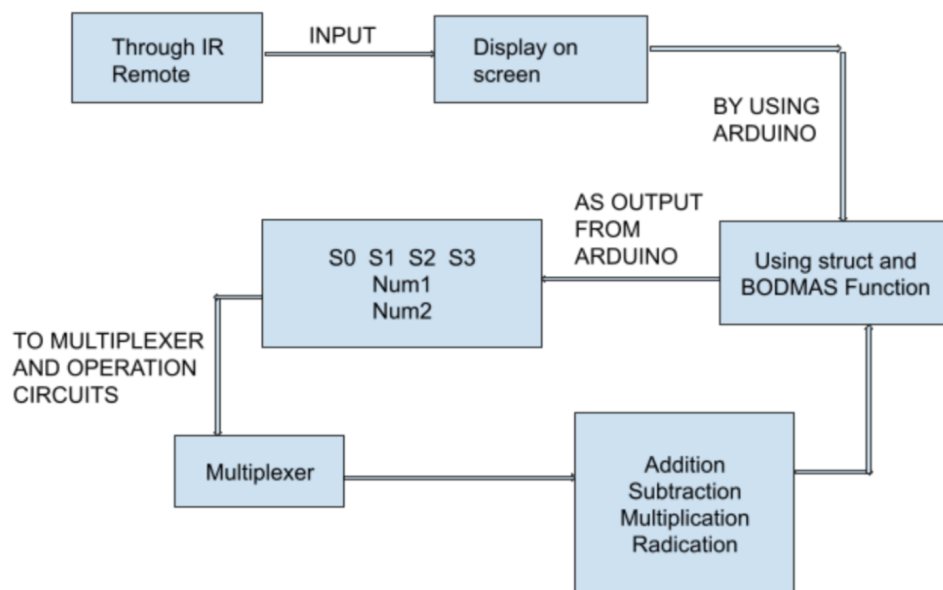# Beyond Bits

This report provides an in-depth analysis of the Beyond Bits electronics project, specifically focusing on the development and implementation of an analog calculator. The project leverages various components, including an IR setup and an Arduino-based control system, to create a functional analog calculator.

Flow Chart

IR Setup

The IR setup is used to provide input values to the arduino.

Arduino-Based Control

In this project, the Arduino is used to control the IR setup, collect data from the sensors, and provide this data as input to the analog calculator. It acts as the central hub, coordinating the various components and ensuring smooth operation.

Arduino Code:

final_code.ino
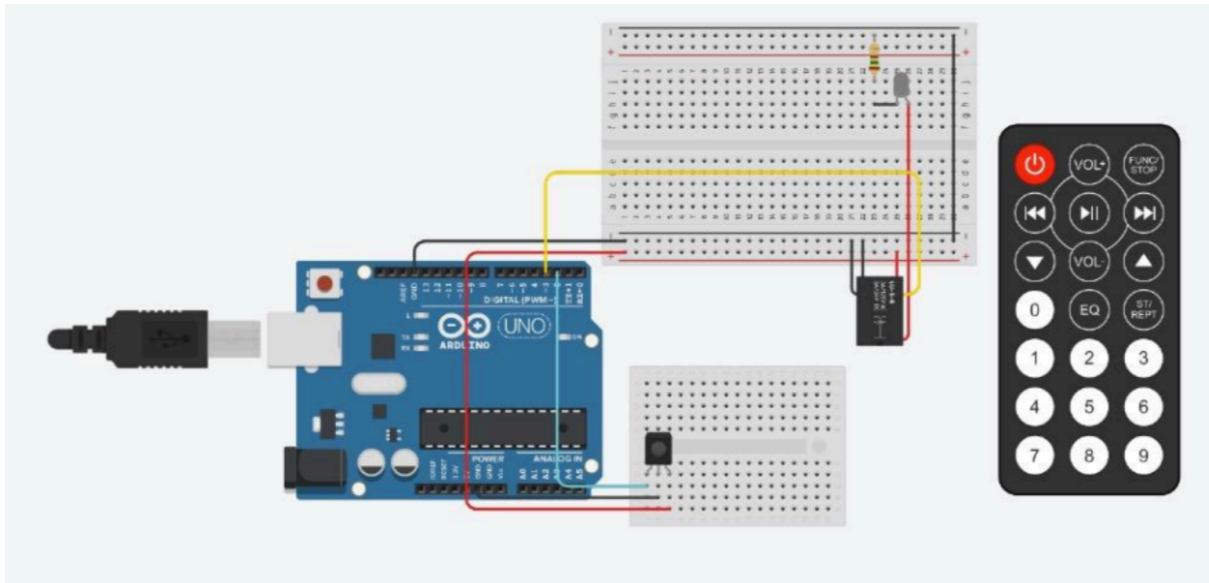
Analog Calculator

Overview:

An analog calculator uses analog electronics to perform arithmetic operations. Unlike digital calculators, which operate using binary logic and digital circuits, analog calculators use continuous signals to represent numerical values and perform calculations.

Components and Working:

- **Operational Amplifiers (Op-Amps):** These are used to perform mathematical operations such as addition, subtraction, multiplication, and division.
- **Resistors:** These components are used in various configurations with op-amps to set Voltages for different operations.
- **Voltage Sources:** Provide the necessary power to the op-amps and other components.
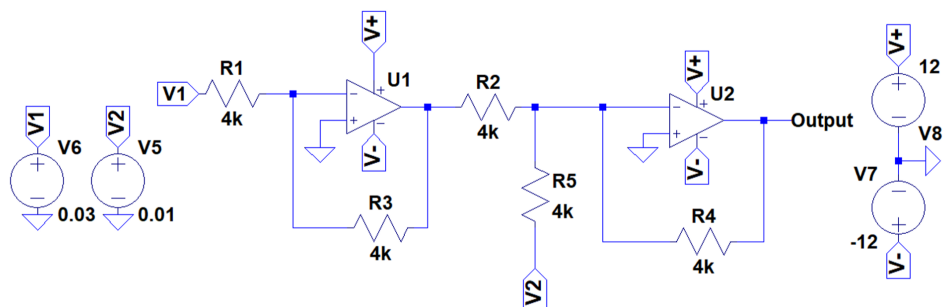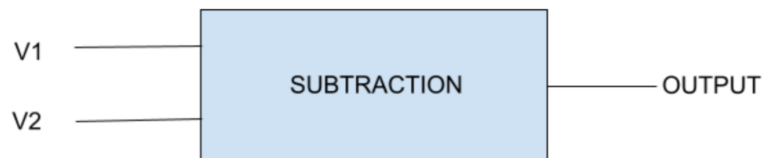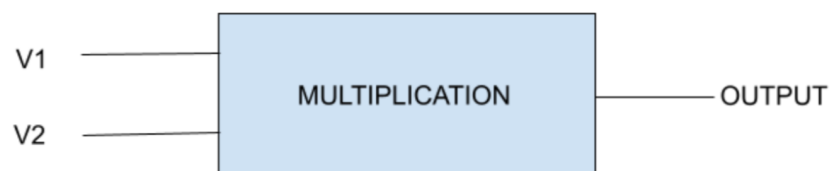

Addition:

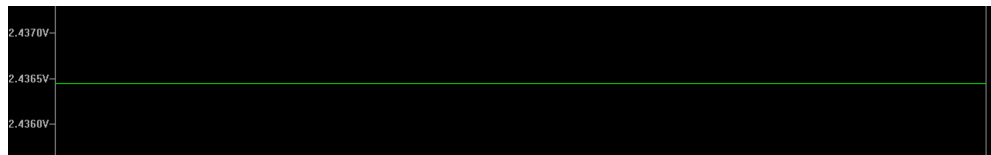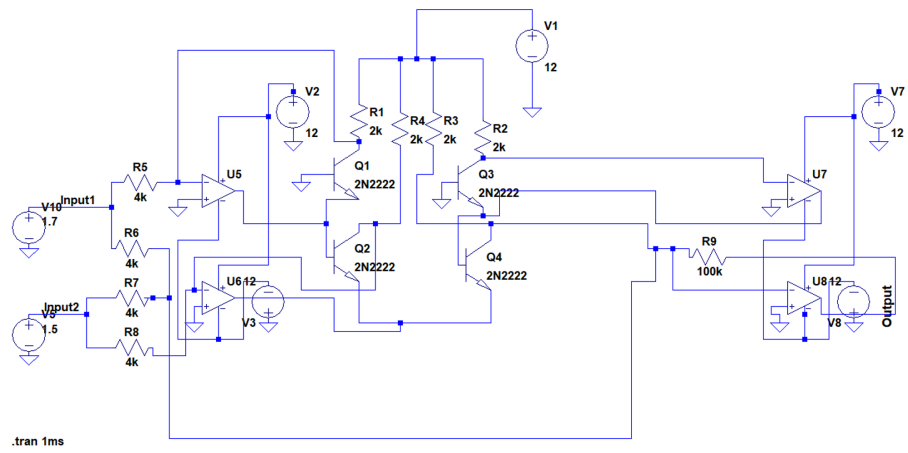For Pins $S_0 S_1$ (00):
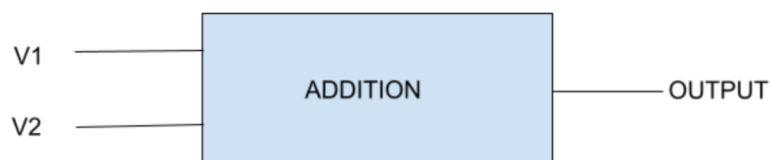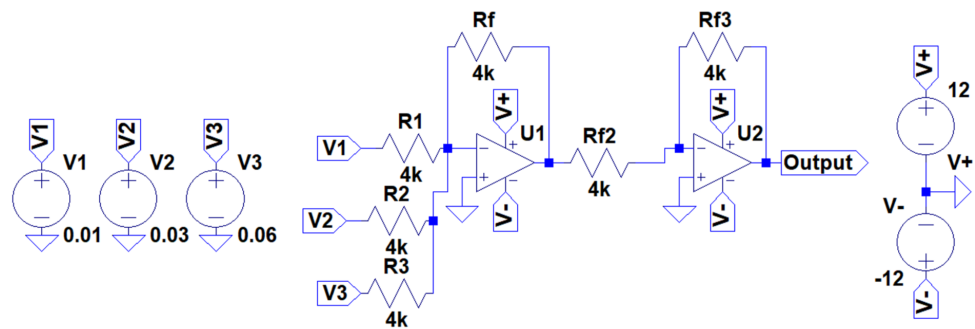
Substraction:

For Pins $S_0 S_1$(01):

Multiplication:

For Pins $S_0 S_1$(10):
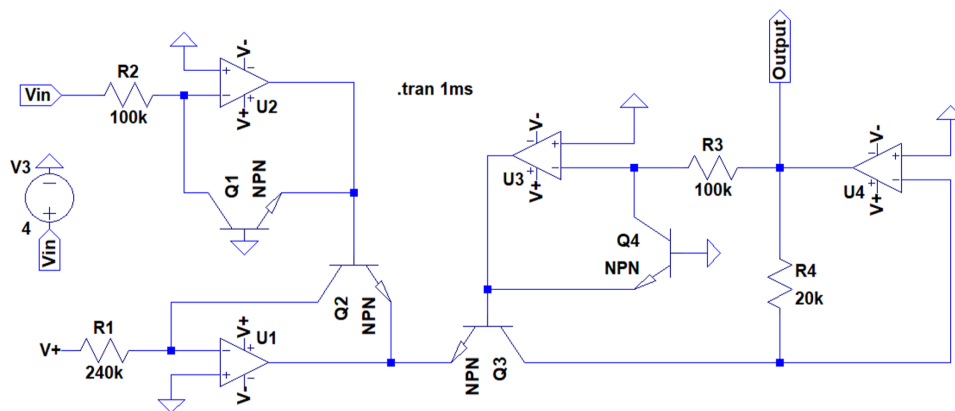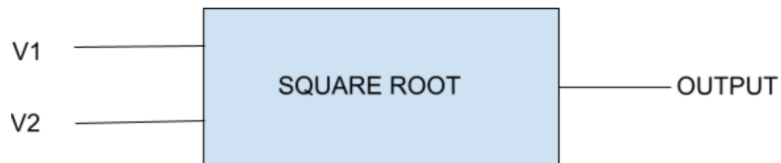
Square Root:

For Pins $S_0 S_1$ (11):

LT spice Schematics for All operations: Analog Calculator