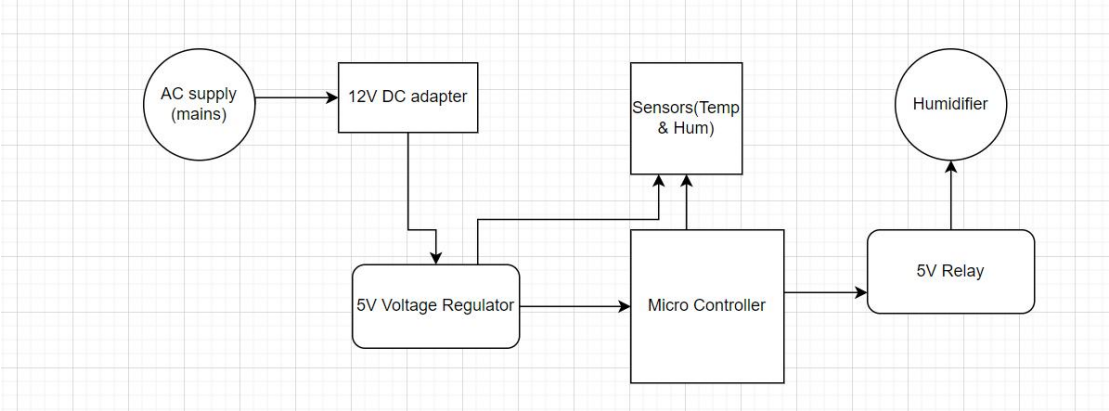
DESIGN FOR A HUMIDiFIER CIRCUIT (Ultrasonic)

DATE: 27th December 2023

The initial design for a simple humidifier circuit that works through an ultrasonic transducer to provide vibrations that allow tiny droplets of water or any hydrosol to form mist.

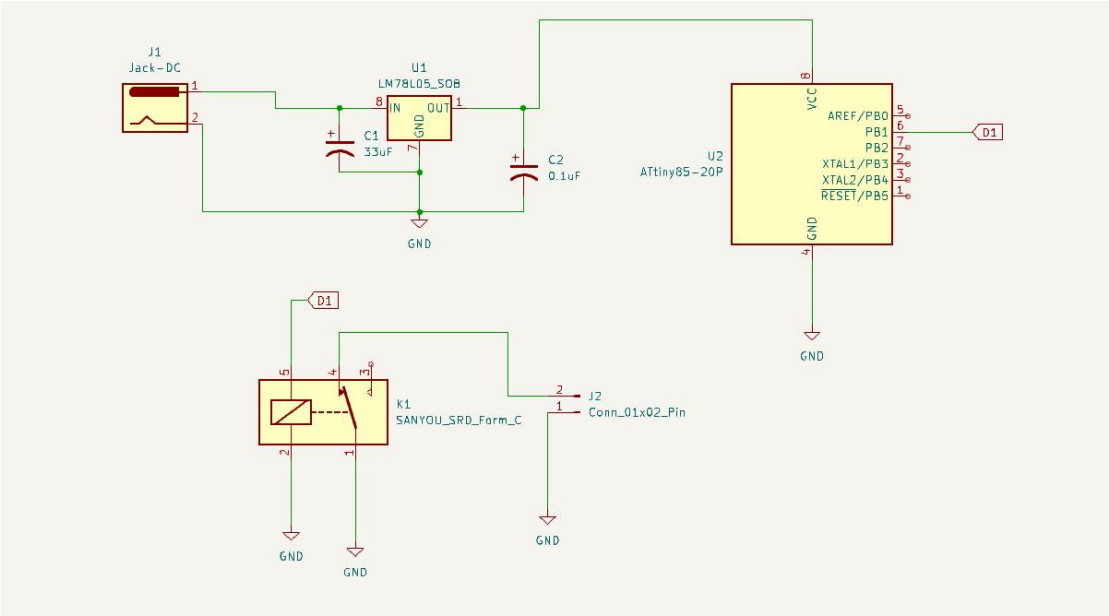
A. Block Diagram

The block diagram was designed using Draw.io software and it highlights the path from the power input all the way to the humidifier.



B. Schematic Diagram

Using KICAD 7.0,a realistic sketch of the schematic was done.

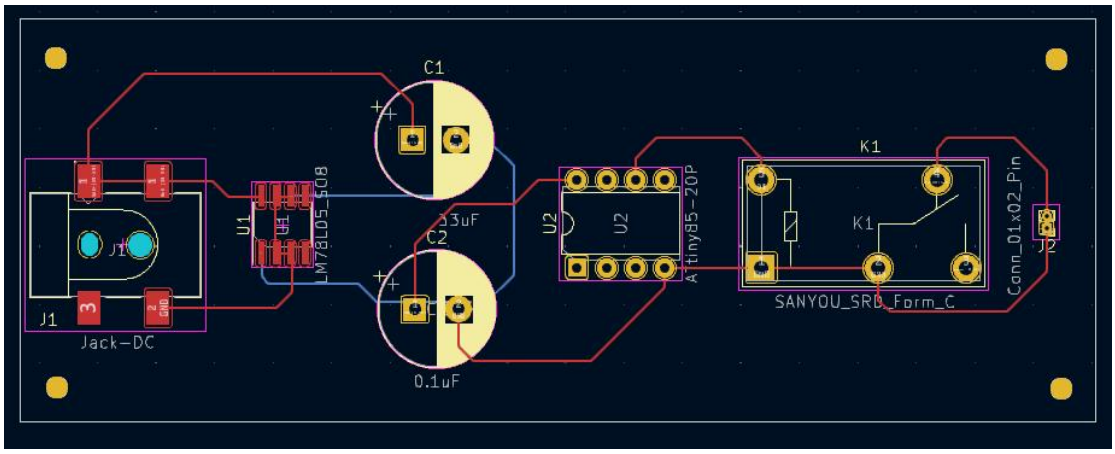


The main circuit includes:

1. a Jack DC pin for connection with a power adapter,
2. LM78L05 5V Voltage Regulator
3. Capacitors to reduce AC noise
4. ATtiny MCU to control the relay
5. Relay to turn ON/OFF the circuit
6. Connector pin to connect with the ultrasonic transducer.

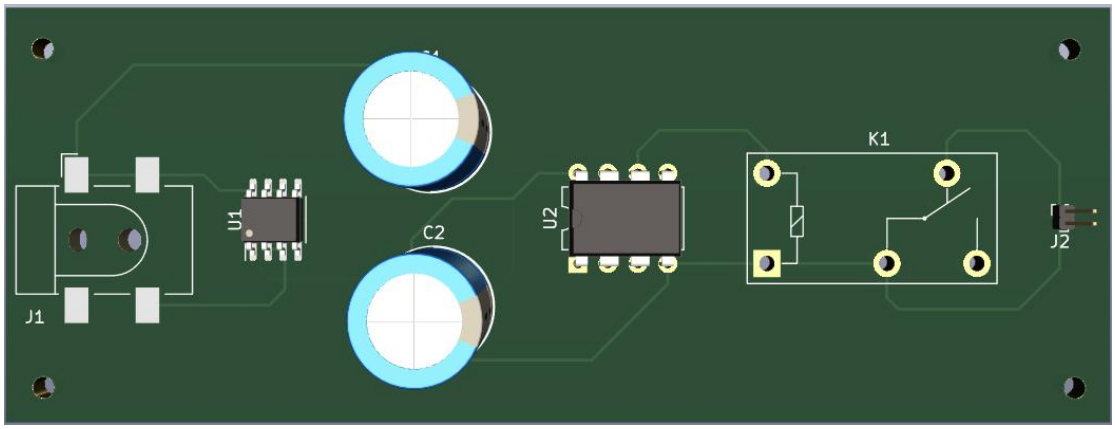
C. PCB Layout

A PCB layout was then developed from the schematic,using the same software.



D.3D View

The dimensions are for length 9.5 cm and width 3.5 cm.



Challenges

1. Due to the simplicity of the circuit,it might not be clear if the circuit is able to withstand physical challenges
2. Getting a suitable humidifier could be challenging.

Conclusion

The project was overally successful pending assembling and testing.
Most skills and tools from CAD to electric design were combined to form an output; an ultrasonic humidifier circuit.