G17 DIY PROJECT

AMBIENT AIR QUALITY SENSOR AND AUTOMATIC AIR HUMIDIFIER

Our Team and activity

Hardware Components and Budget

The Problems we solve

Circuit diagrams

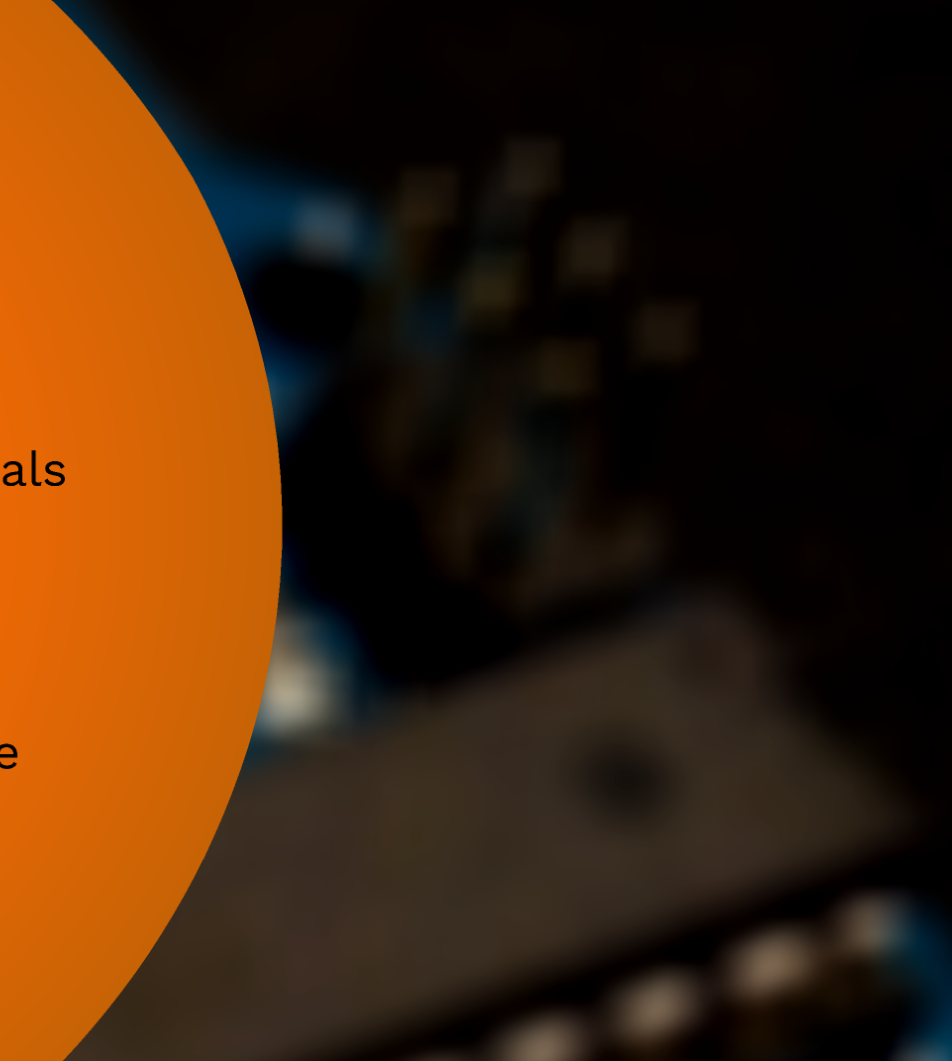
- **TANISHQ PRASAD** (21CS30054) Group leader-SOFTWARE AND CODING
- **ANAN GUPTA** (21ME30013)-HARDWARE AND ASSEMBLING THE PROJECT
- **RUDRA SAI TEJA** (21CE30025)-PRESENTATION MAKING
- **SAMPRITI MAYRA** (21CY10034)-PRESENTING AND INTERACTING

Activity Plan

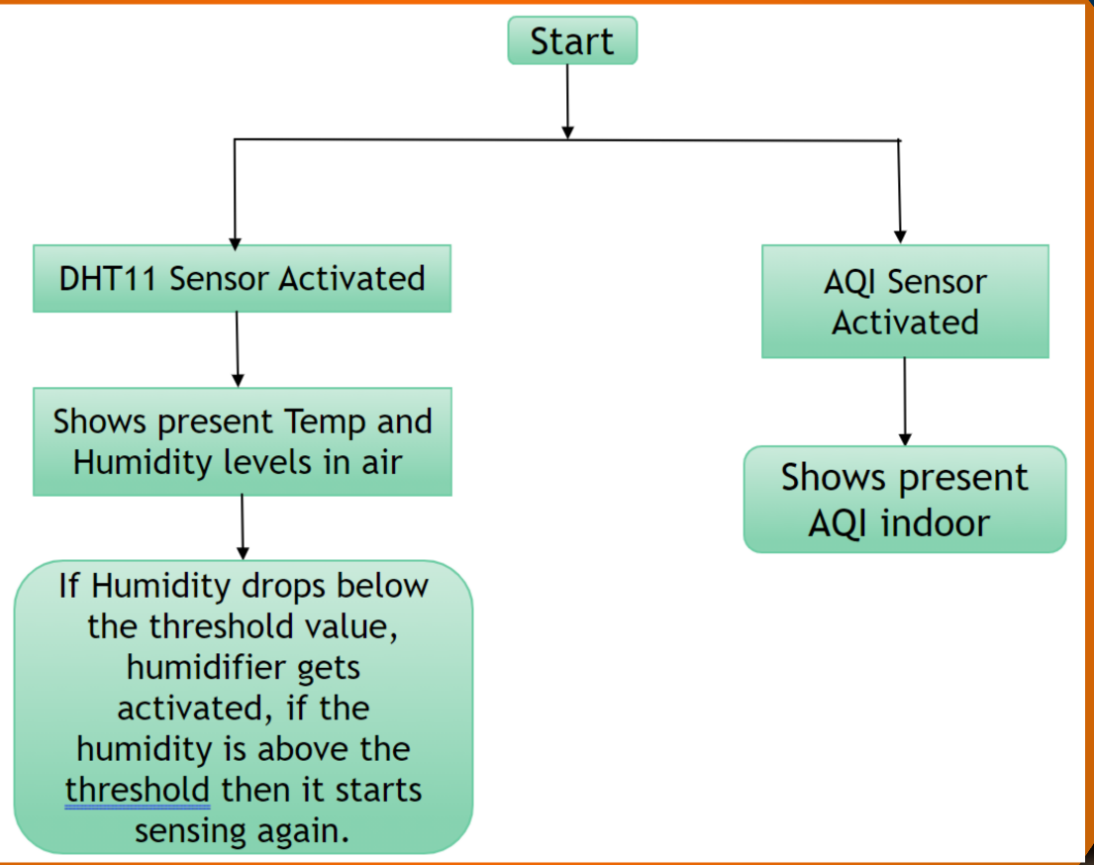
Workflow of the model

Activity Plan

- Discussing and finalizing the project.
- Sharing the work among the group.
- Estimating the budget for the materials required.
- Coding the algorithm for the project.
- Assembling the physical model of the project.
- Making the final presentation.

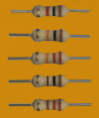


Workflow


Start
DHT11 Sensor Activated
Shows present Temp and Humidity levels in air
If Humidity drops below the threshold value, humidifier gets activated, if the humidity is above the threshold then it starts sensing again.
AQI Sensor Activated
Shows present AQI indoor

Hardware Components and Budget

Breadboard and Jumper wires (Rs.196)



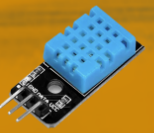
Resistors (Rs.20)

Humidifier (Rs. 597)

LCD display (Rs.256)

Potentiometer (Rs.10)

Male Berg strips (Rs. 15)



DHT11 sensor (Rs.240)

Arduino UNO board (Rs.460)

MQ 135 sensor (Rs.158)

Budget = Rs. 1952

Problems we faced

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- Problem 1- finding whether the humidifier works on dc or ac input, then whether on pulsating dc or constant dc
- Solution: The ratings showed it uses a higher voltage and uses an adapter, so we concluded that it works on DC Input .
- Conclusion for constant magnitude: we connected it to arduino and we concluded the constant nature of input.

- Problem 2- LCD monitor wouldn’t light up even with properly compiled code, turned out the connection wasn’t proper and all the pins were not connected
- Solution: we got soldering done with the board.

- Problem 3- Importing the dht11 file, we can't create two setups in the code
- Solution: Creating two setups in code was lowering the voltage received by Humidifier

- Problem 4: LCD monitor wasn't showing data for temperature and humidity
- Solution: We rectified the code of that pin and it worked fine.

The Problems we solve

- Measuring indoor air quality and major indoor air pollutants.
- Measurement of ambient temperature and humidity and problems associated with low humidity

Indoor air quality index

Automatic humidifier

Indoor AQI:-

- We spend up to 90% of our time indoors.Reports reveal that poor IAQ is the second major factor for the higher mortality rate in India. It causes around 1.3 million deaths per year in the country.
- While regular maintenance and inspection of gas burning equipment in the home can minimize the potential for exposure to CO gas, the possibility for some type of sudden failure resulting in a potentially life threatening build up of gas always exists.

How we solve the issues:-

- It can provide Real-time (continuous) measurements. Real-time monitors can be used for the detection of pollutant sources, providing information on the variation of pollutant levels throughout the day
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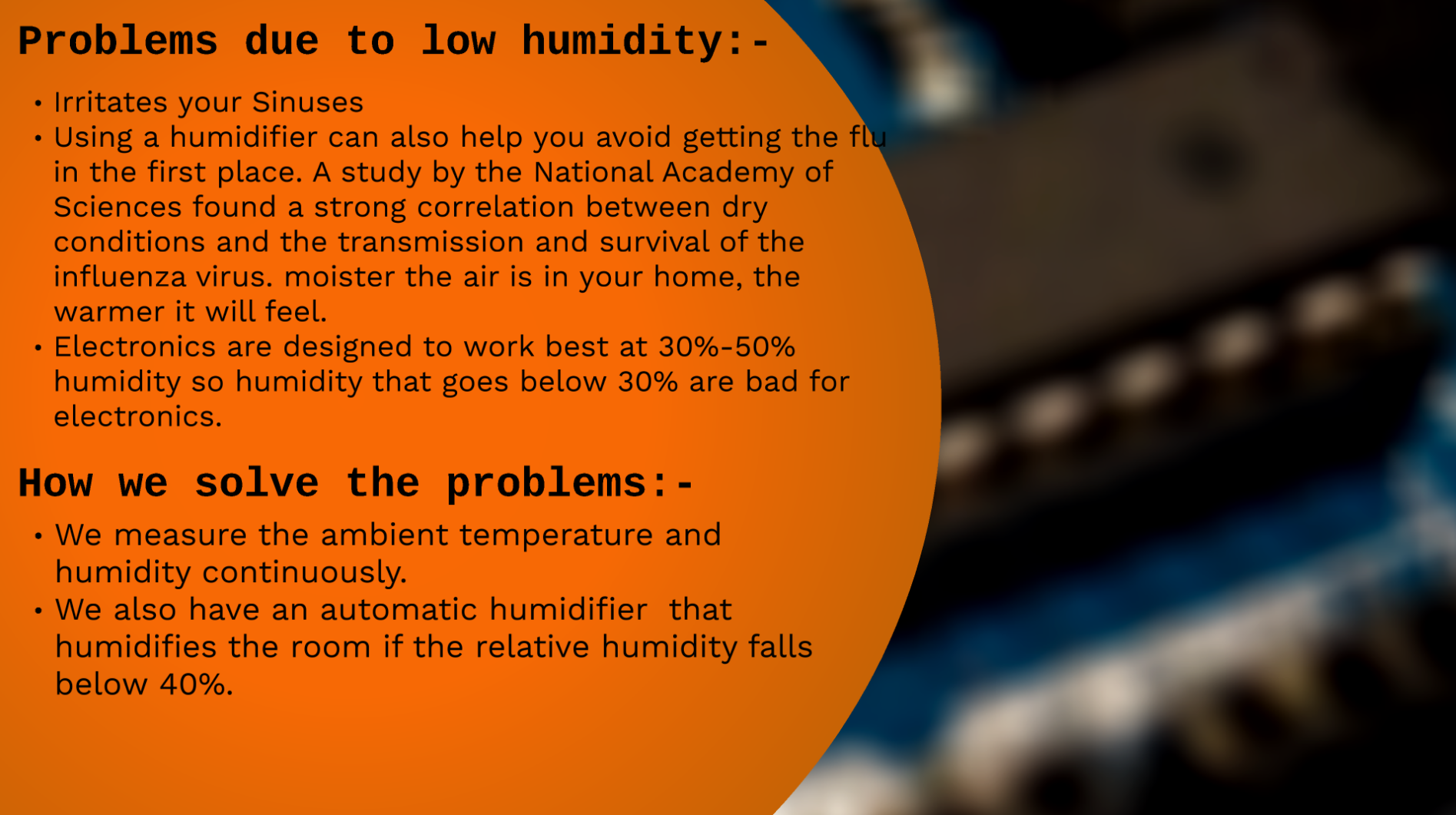
- It's Portable and cost effective

Problems due to low humidity:-

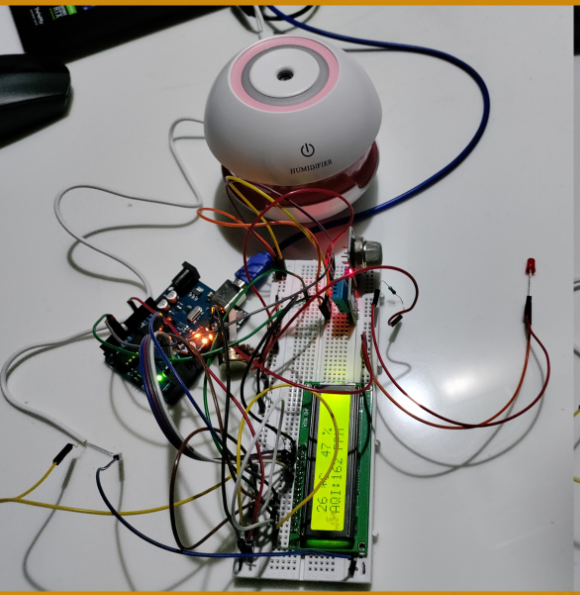
- Irritates your Sinuses
- Using a humidifier can also help you avoid getting the flu in the first place. A study by the National Academy of Sciences found a strong correlation between dry conditions and the transmission and survival of the influenza virus. moister the air is in your home, the warmer it will feel.
- Electronics are designed to work best at 30%-50% humidity so humidity that goes below 30% are bad for electronics.

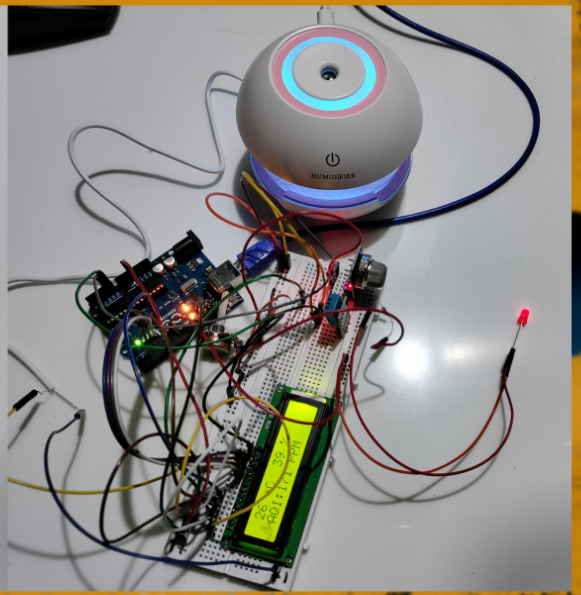
How we solve the problems:-

- We measure the ambient temperature and humidity continuously.
- We also have an automatic humidifier that humidifies the room if the relative humidity falls below 40%.



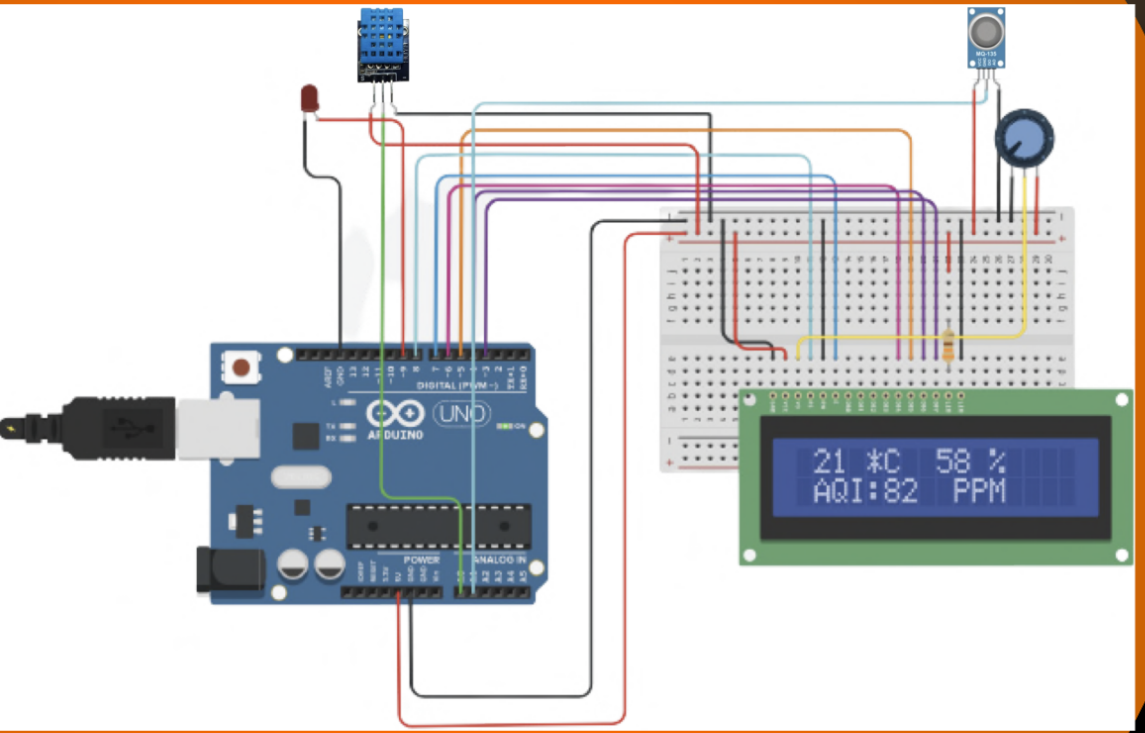
Circuit Diagrams





TinkerCAD

In TinkerCAD



**here the red LED depicts the humidifier