

# MAJOR - PROJECT ON **WEATHER** FORECAST USING IOT & ML

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## MEET OUR TEAM

1. Bharat Sharma (191599003)  
Role : Team Lead, Model Building, Model Deployment, Project Documentation
1. Mohit Sharma (191599011)  
Role : Hardware coding
1. Abhishek Tomar (181500030)  
Role : Hardware Integration
1. Pushpraj Singh (191599015)  
Role : Data Pre-processing, Model Testing

Project Mentor

Mr. Jitesh Kumar Bhatia

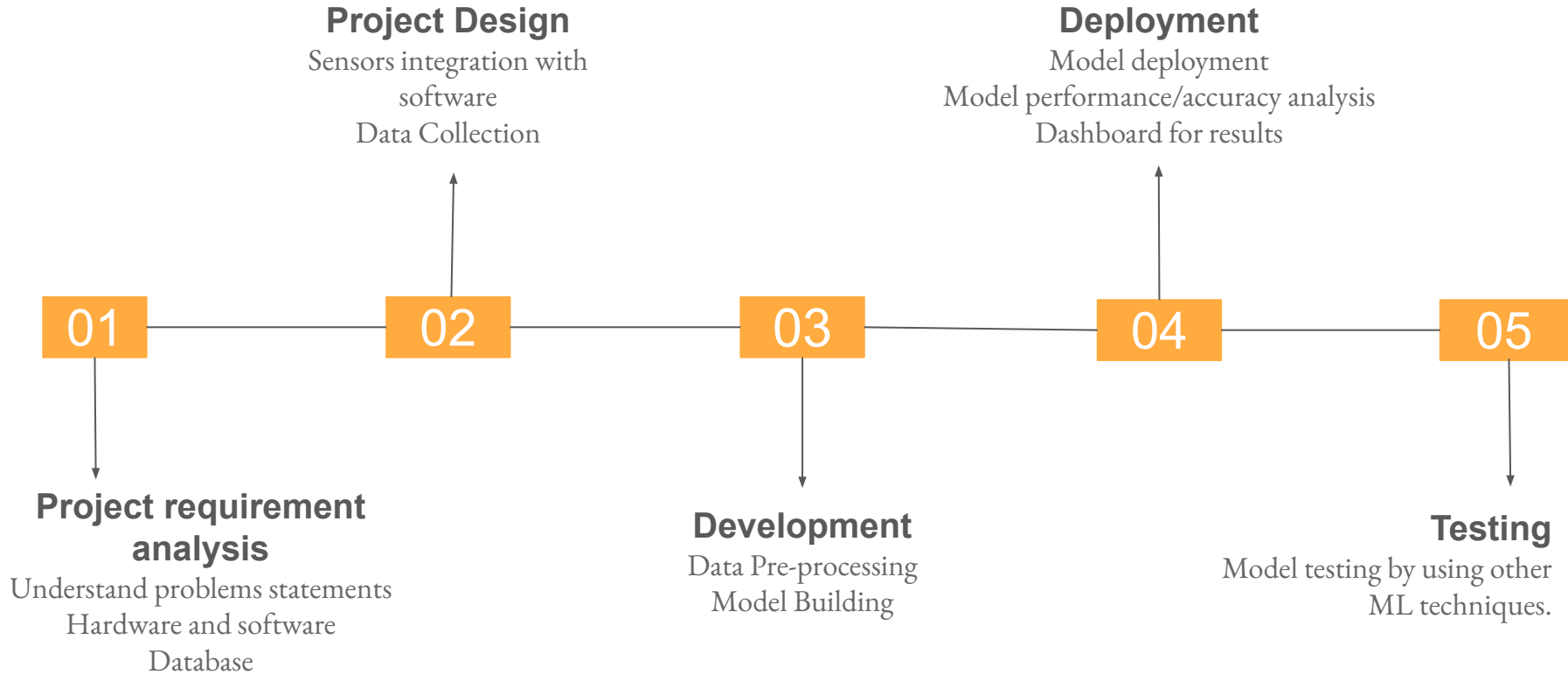
Ass. Professor GLA

# INTRODUCTION

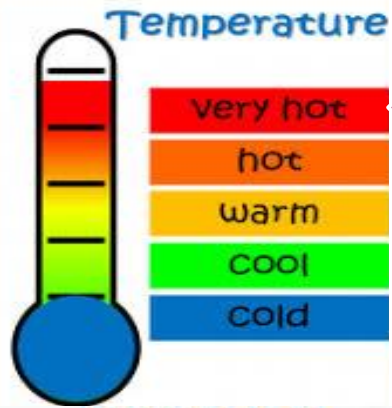
- ❖ Weather forecasting is the application of science and technology to predict the state of the atmosphere for a particular location.
- ❖ This system will predict weather parameters through hardware such as temperature, humidity, wind speed, wind direction and rainfall value.



# Project phases



# PROJECT PROBLEM STATEMENTS



Temperature

very hot

hot

warm

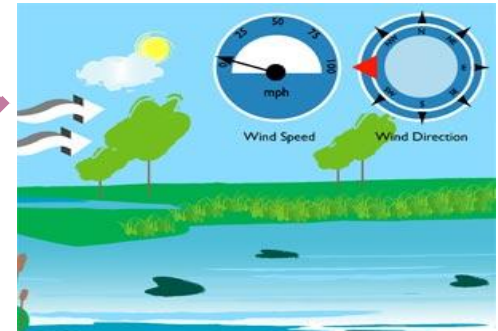
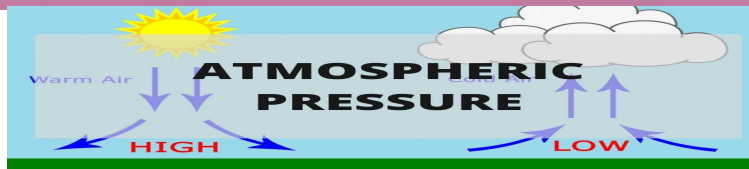
cool

cold

HUMIDITY



1. Collect Data from the sensor.
2. Data Pre-processing
3. Model Building
4. Deployment
5. Testing



Wind Speed & Direction

Rainfall



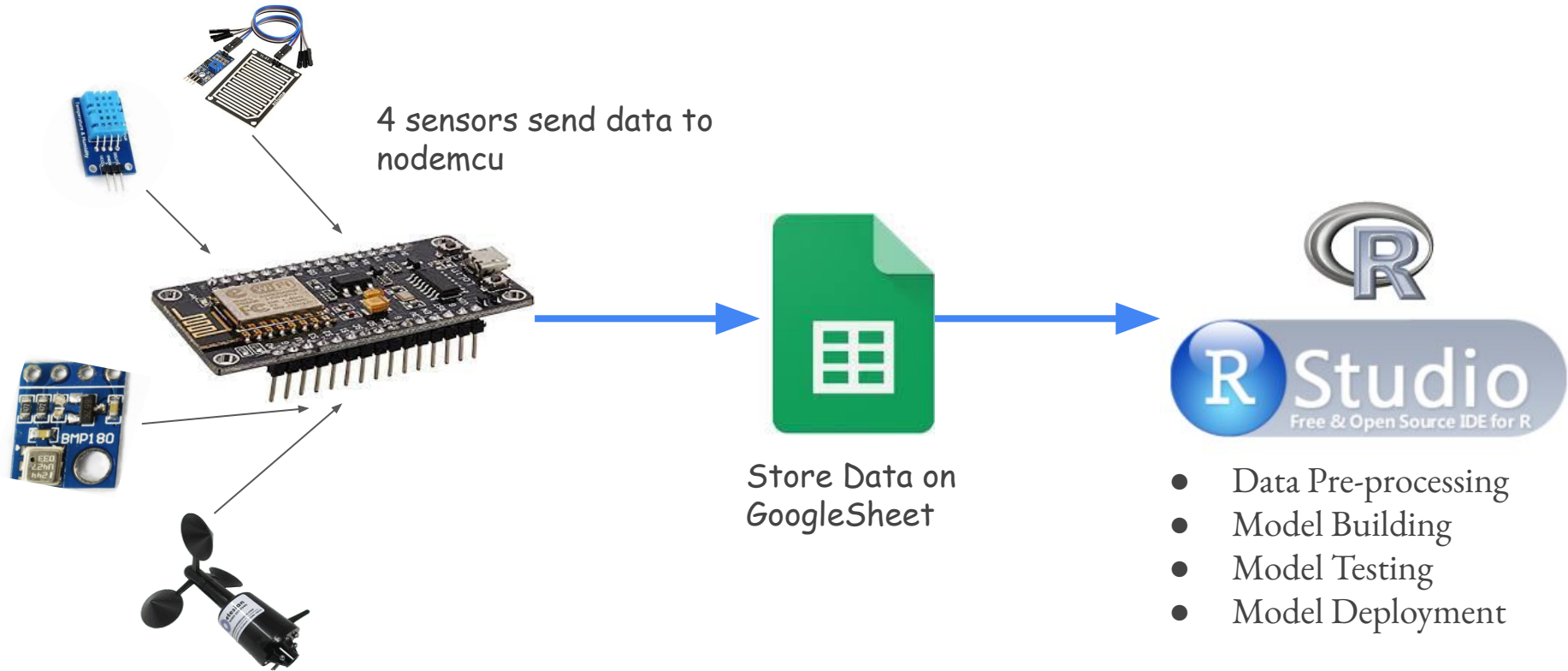
# Weather Parameter to be measured and predict

1. Weather Temperature
2. Weather Humidity
3. Wind Speed
4. Wind Direction
5. Weather rainfall
6. Weather Atmospheric Pressure

## Process

- ❖ We collect all the values from the sensor and send to the google sheet through nodemcu.
- ❖ We used this data in R for data pre-processing and prediction model building by using some historical data sample.

# Hardware & Software Communication



# Hardware required

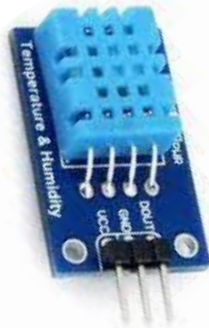
NodeMCU Micro-Controller



Rainfall sensor



DHT11



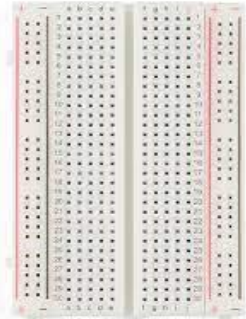
Barometer Sensor



Wind Speed & direction sensor



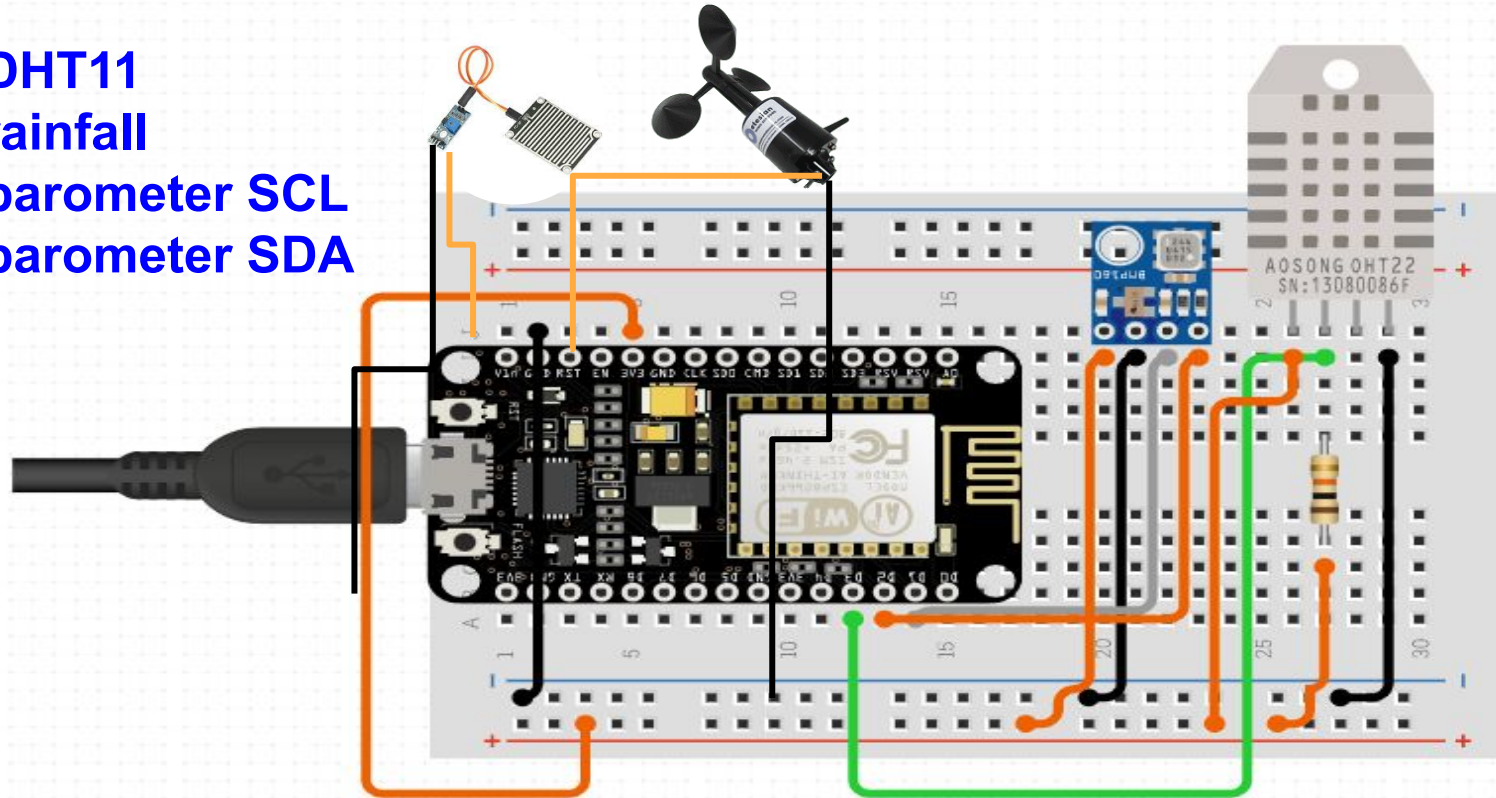
Bread Board





# Pin Diagram

**Nodemcu D2 - DHT11**  
**Nodemcu A0 - rainfall**  
**Nodemcu D1 - barometer SCL**  
**Nodemcu D2 - barometer SDA**



# Project Code

[Arduino code](#)

[R Code](#)

[Google Sheet Code](#)

## Pricing table



# Hardware Components

S.N	Name of Components	Unit price	Total	Vendor Name	Link of Vendor	Life Span	Power(kwh)/month
1	NodeMCU	218.00	218.00(1x)	electronicscomp	<a href="#">click here</a>	--	--
1	Wind Dir. & Speed Sensor	4799.00	4799.00(1x)	Robo.in	<a href="#">click here</a>	--	--
2	DHT11	125.00	125.00(1x)	electronicscomp	<a href="#">click here</a>	--	--
3	Barometer	54.00	54.00(1x)	electronicscomp	<a href="#">click here</a>	--	--
4	Rainfall Sensor	99.00	99.00(1x)	Robo.in	<a href="#">click here</a>	--	--
5	breadboard	65.00	65.00(1x)	electronicscomp	<a href="#">click here</a>	--	--
6	Jumper wire	49.00	147.00(1x)	electronicscomp	<a href="#">click here</a>	--	--
Estimated Cost(Rs)		5408.00	5507.00				
							0.00u

Software	Language
R Studio	Embedded C
Arduino	R
Google Sheet	
GitHub	

# Project Cost Estimate

S.N	Components	Monthly	Yearly	Remark
1	Hardware	--	5507.00	These hardware can run several years
2	Software/ cloud	0.00	0.00	We use open source platforms
3	internet	200.00	2400.00	May be vary with time
4	Electricity	--	--	--
5	Installation	--	--	--
6	Maintenance	--	--	--
7	Deployment	--	--	--
Total			7907.00	Some cost of the project module not added

# Project Gantt chart

Phase	Activities	Status	Remark
1	<u>Project requirement analysis</u>	Done	10% of project done
2	<u>Project Design &amp; Prototyping</u>	Done	20% of project done
3	<u>Project Development and Code</u>	Done	60% of project
4	<u>Project Deployment</u>	Pending	80% of project
5	<u>Project Testing</u>	Pending	100% of project

# Application Areas.

- ❖ Agriculture
- ❖ Sports
- ❖ Tourism
- ❖ Air Traffic
- ❖ Marine and Forestry
- ❖ Manufacturing Industries at Cloudy side

**THANK YOU !**  

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For Your Attention