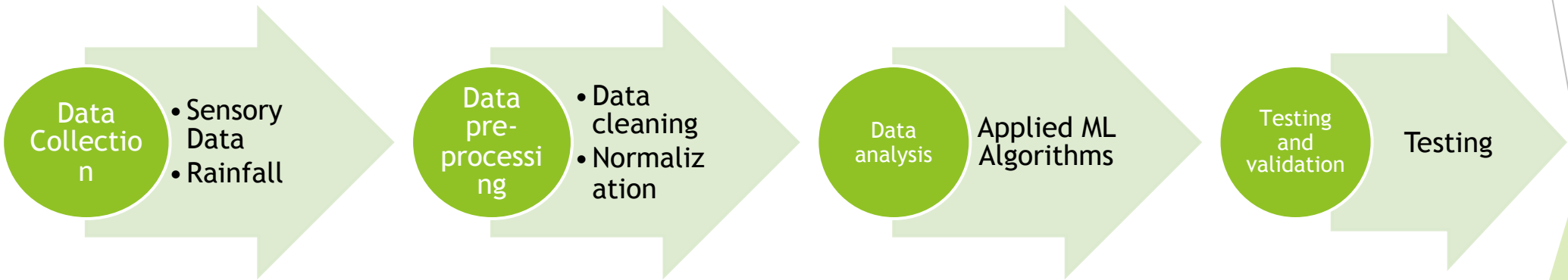
Prediction of Soil Health Using Machine Learning and IoT

How we can use this :-

- Prediction of soil health using Machine Leaning and IoT.
- Once soil health is predicted. We can use it for sending notifications to farmers across regions.
- Can provide automatic soil health updates and suggestions.
- For fertilizers, irrigation and other advices.
- This can be combined with land owners.

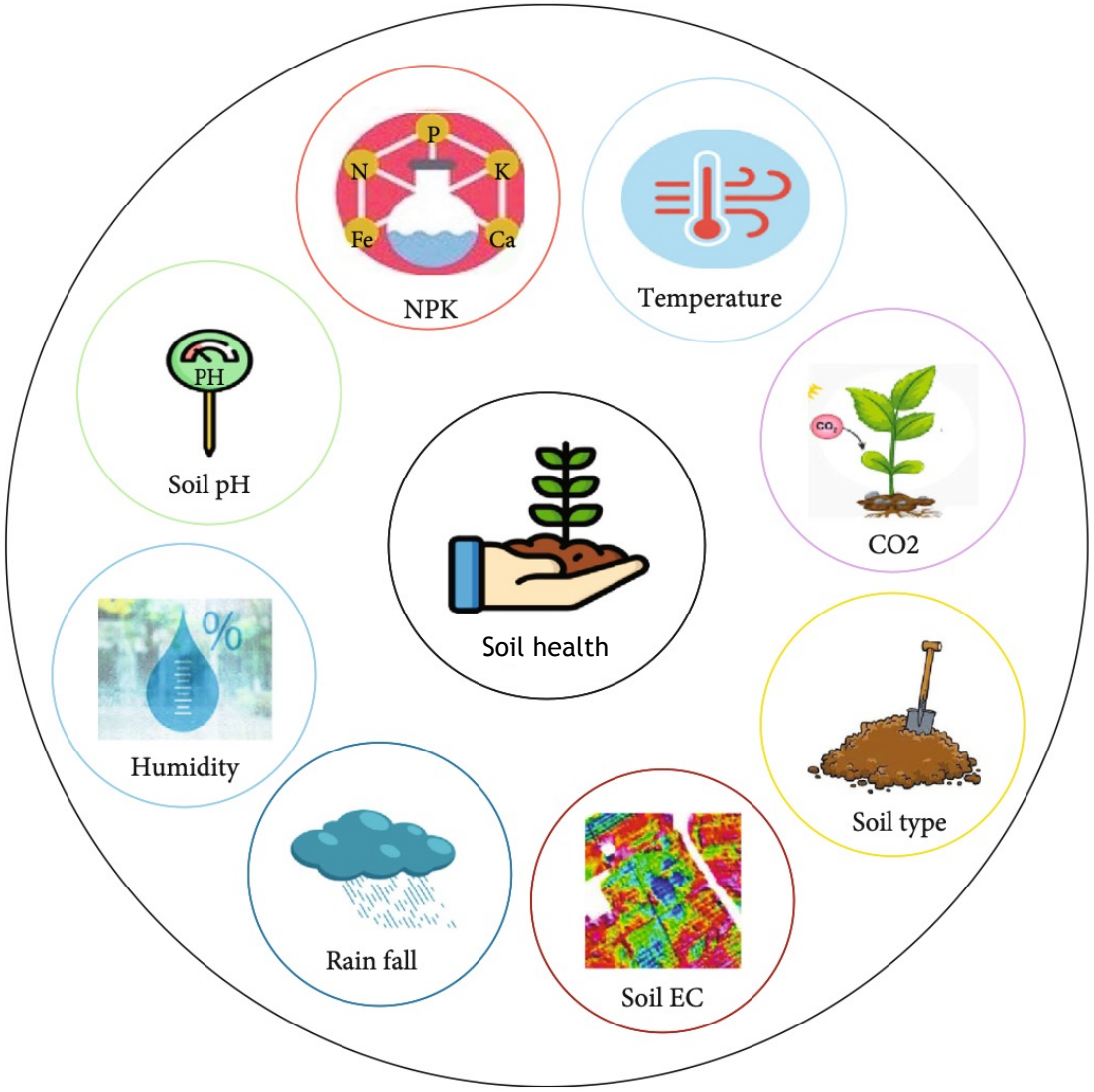
Architecture of Approaching the Problem



Sensors Data used for Prediction:-

- Nitrogen Level
- Potassium Level
- Phosphorus Level
- pH Level of Soil
- Humidity
- Temperature
- Rainfall

Essential Inputs :-



Dataset :-

- For 22 Different Crops

N	P	K	temperature	humidity	ph	rainfall	label	productivity
39	5	31	27.10134661	93.69979946	5.551963184	150.9502632	coconut	0.8264
37	5	34	25.79490531	93.84150618	5.779032666	152.4238712	coconut	0.8276
40	5	29	28.48444906	97.76865458	5.820978791	160.389421	coconut	0.8352
14	5	36	24.92639065	85.19098079	5.832525853	104.7693804	pomegranate	0.7276
40	5	32	26.07010807	96.7036223	5.981169595	143.533473	coconut	0.817
94	5	55	28.5854649	91.89216849	6.085682344	26.88372572	muskmelon	0.485
111	5	52	29.8843055	94.0371147	6.135996372	21.0000988	muskmelon	0.4718
0	5	36	24.35193812	90.88612388	6.152906502	105.529185	pomegranate	0.7324
119	5	55	29.68846716	94.30111601	6.168757984	26.83924845	muskmelon	0.4846
18	5	11	20.87947369	90.93756231	6.251586885	102.4550786	orange	0.716
111	5	47	28.03306461	91.47355778	6.274452811	21.17924769	muskmelon	0.4726
111	5	50	27.59350075	91.79742953	6.399891457	24.84266123	muskmelon	0.4802
111	5	55	26.283443	84.42478917	6.520663422	50.78669728	watermelon	0.5384

This will be predicted

Input variables

Further Approaches :-

- Creating an Interface/API for soil Health measuring.
- Implementation on a large scale.
- Accumulation of Data from different regions for more precise predictions i.e. increasing the dataset for training purpose.
- Prediction of Yield of crop.