



Ministry of
Education
Government of India



UNESCO INDIA AFRICA HACKATHON 2022

— TEAM —
Geeks_On_Fire

— THEME —
Agriculture

— TEAM LEADER —
Rudrakshi





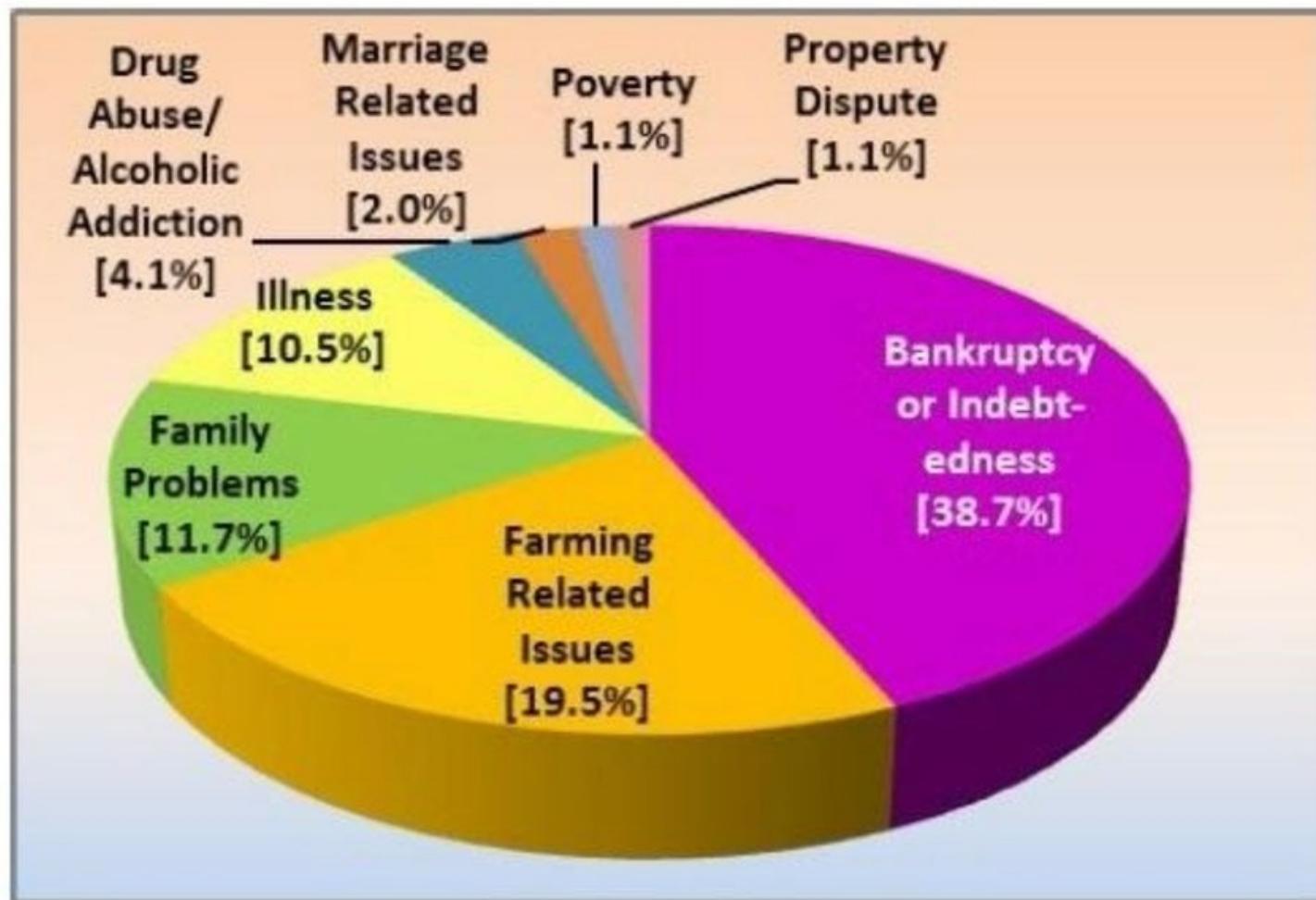
Krashak.AI



PROBLEM STATEMENT (AGRI12).

AI based voice assisted Contact Center for assisting Farmers for their problems. Farmers can log their problems with the contact center thru phone calls / SMS / website and in return an automated voice response can be provided to the farmers with the most appropriate solution for their problems.

Percentage Share of Major Causes of Suicides among Farmers/Cultivators during 2015



Farmers related issues are around 19.5% of farmer's death

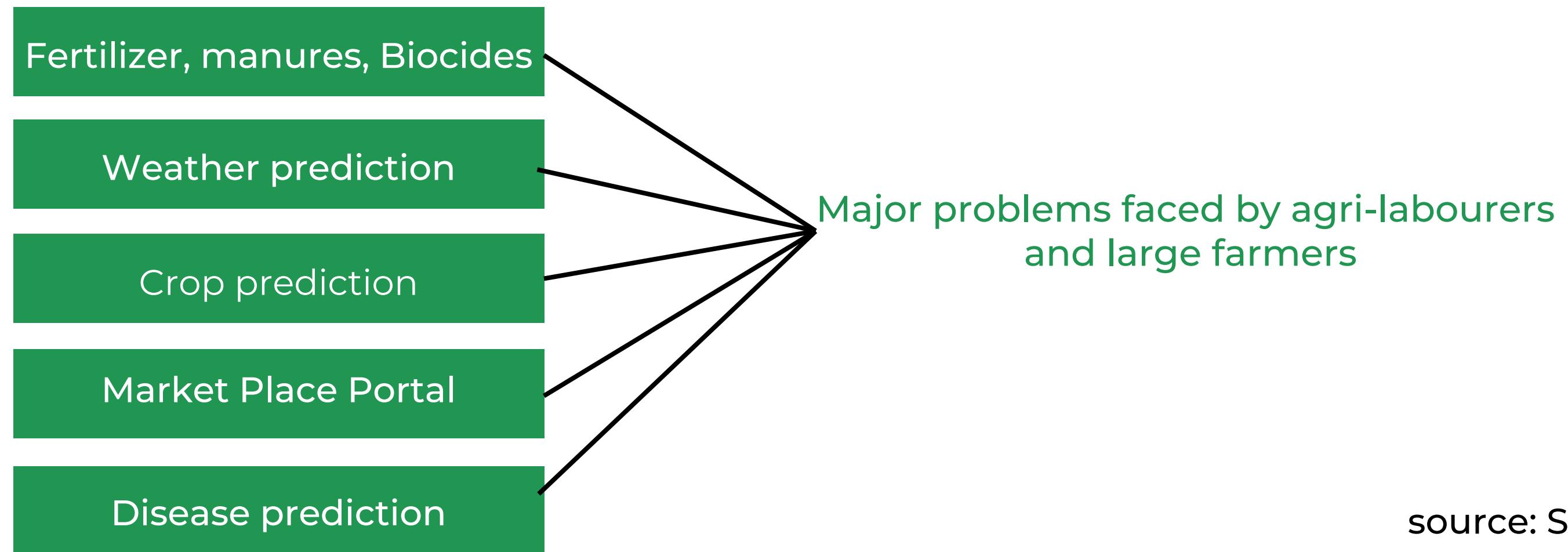


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Farmer's suicide account for 11.2% of all suicides in india.

Source: wikipedia

In India, 86% of 14.6 crore farmers face the below-listed problems.





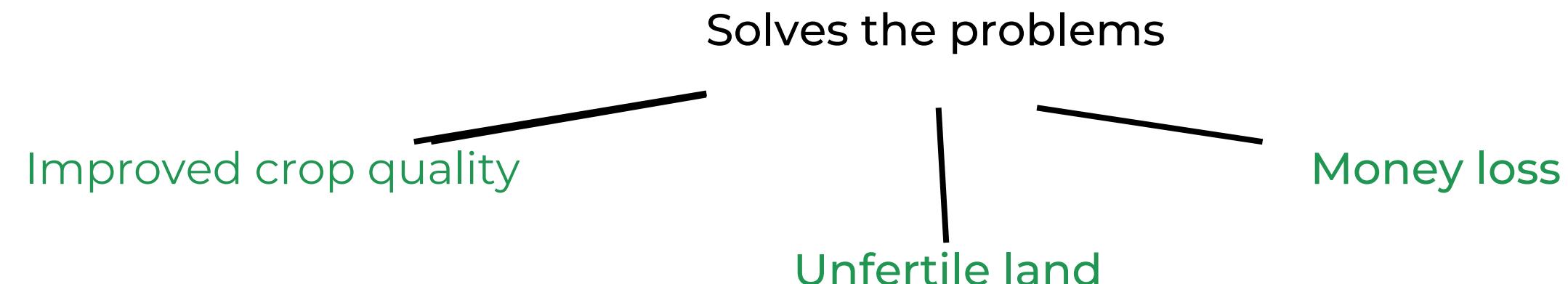
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Problems faced by agri-labourers

Source: Trading economics, study IQ

Fertilizer, manures, Biocides

- 14% of the total farmers are large farmers which own most of the arable land
- According to world bank survey, 60.22 % is arable in India according to 2020
- 86% of 14.6 crore farmers operate on less than 2 hectares land.





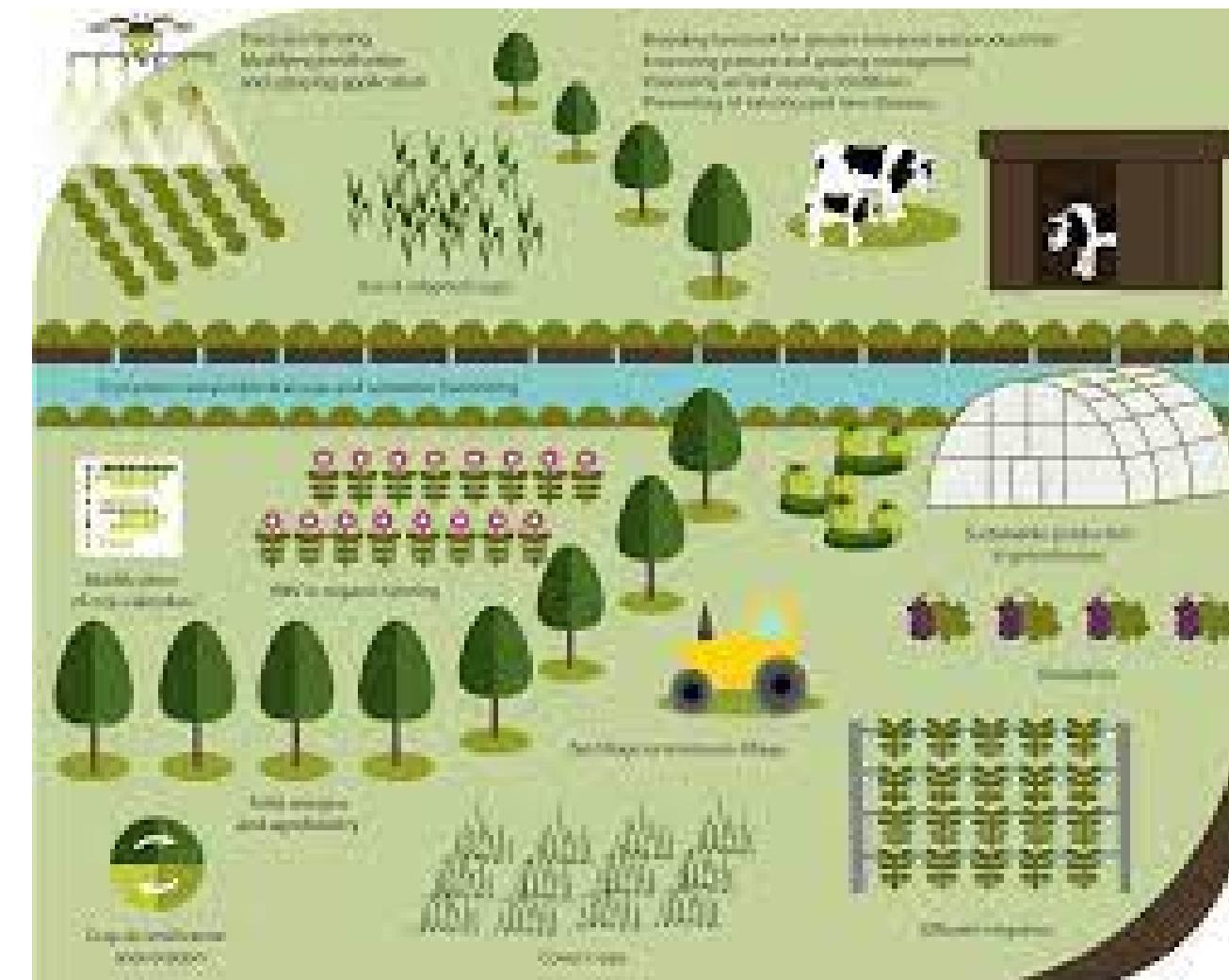
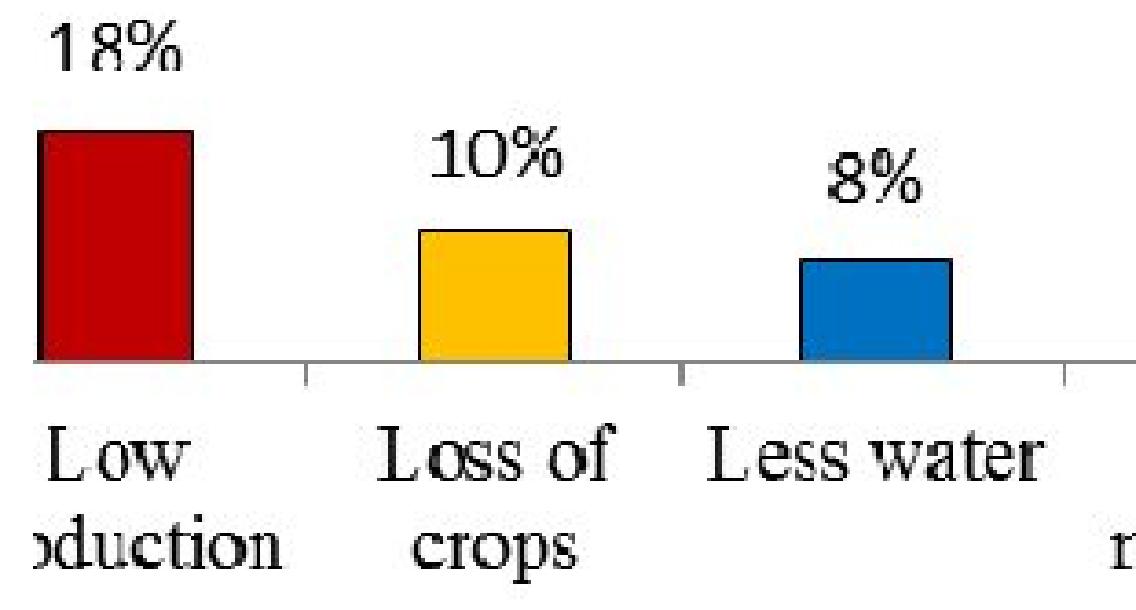
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Problems faced by agri-labourers

Weather prediction

Source:Economic times

UP state of india has received 33% less rainfall than normal





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Crop prediction

Multiple cropping advantages

Increase the crop production

Export increase

Foreign exchange increase

Costs of input decrease as compared to individual crop growing cost

In the past, increases in cropping intensity resulted in an extra crop harvest globally every ten year period since 1961 (Ray and Foley, 2013) and accounted for 9% of the global crop production growth and 31% of the crop production growth in sub-Saharan Africa between 1961 and 2007.

Source : Global Environmental change



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Crop prediction

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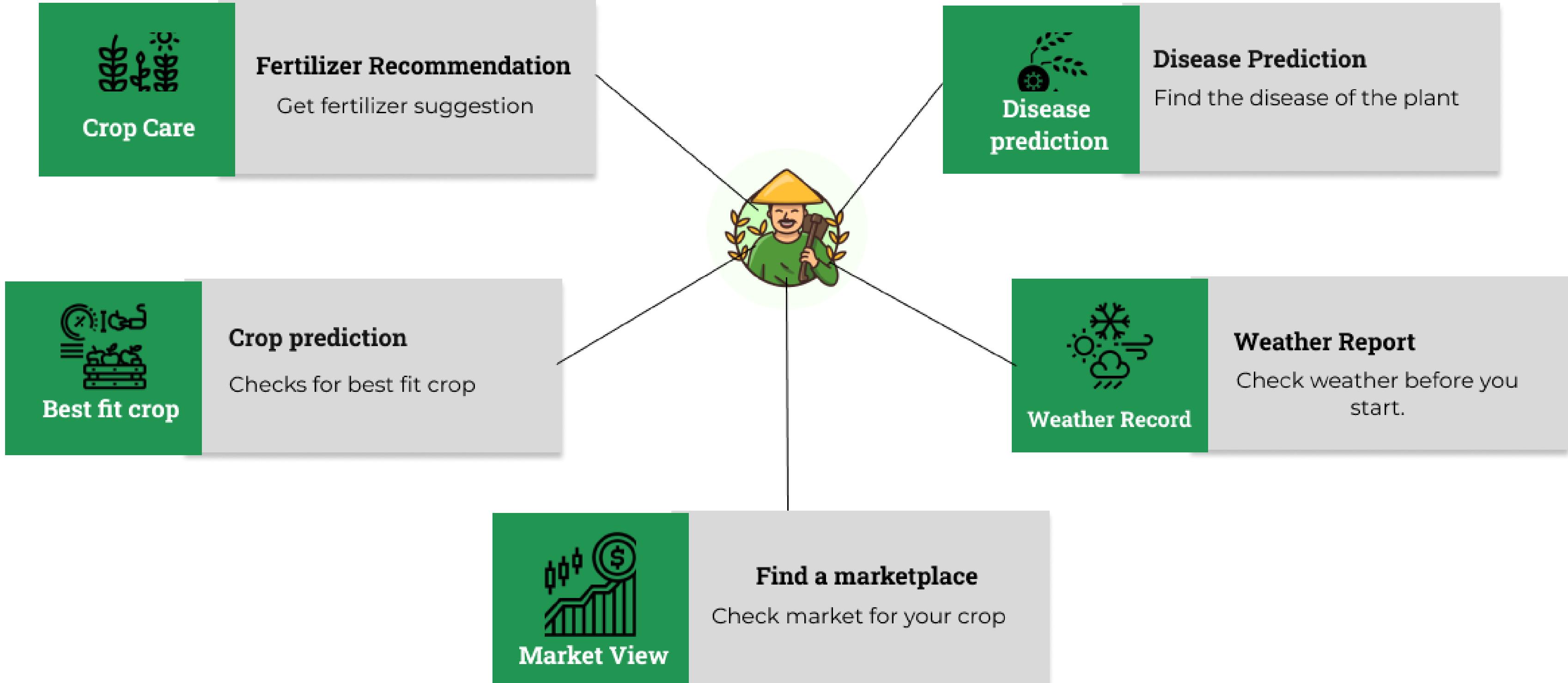
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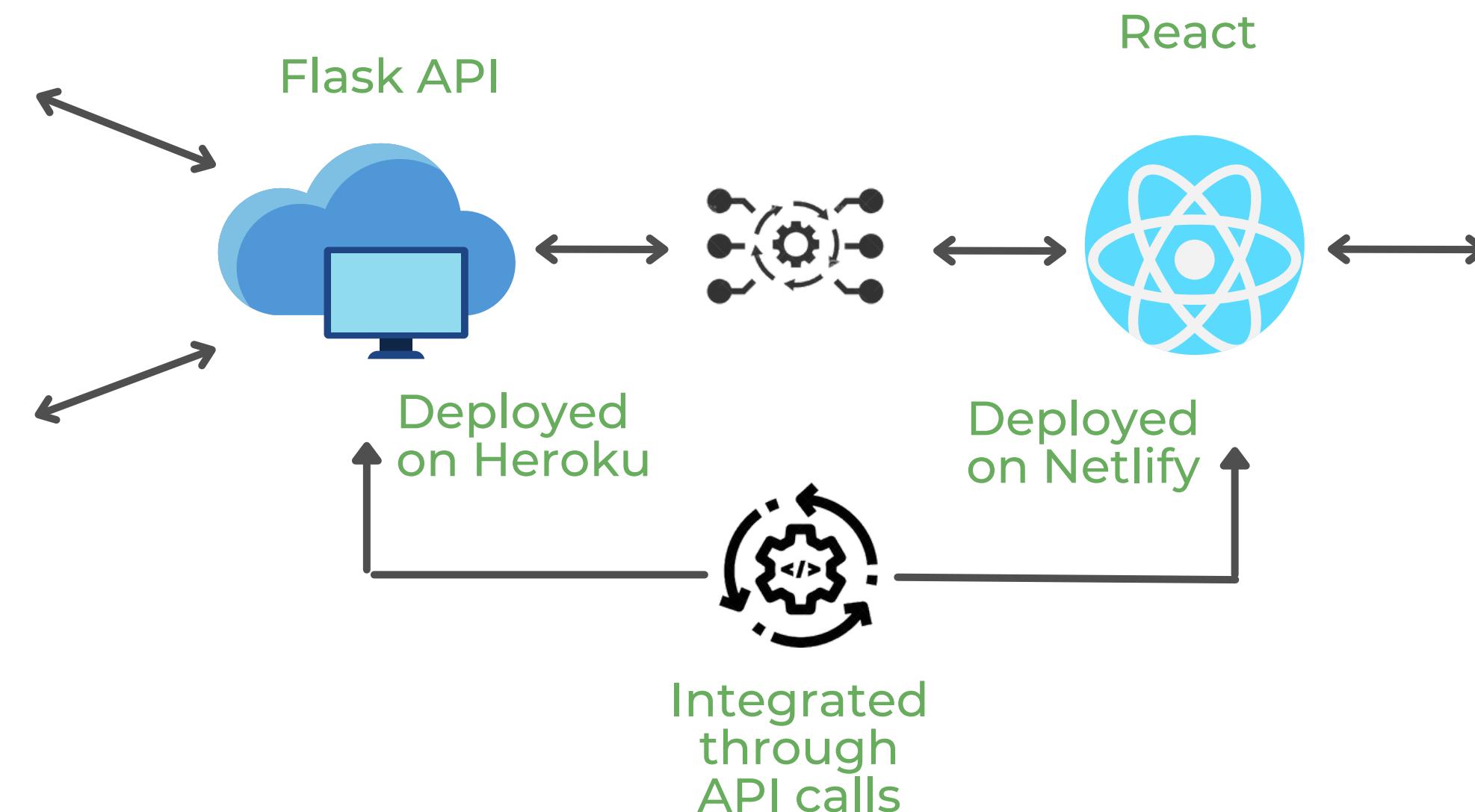
KRASHAK.AI FEATURES





TECHNOLOGY STACK USED

Backend

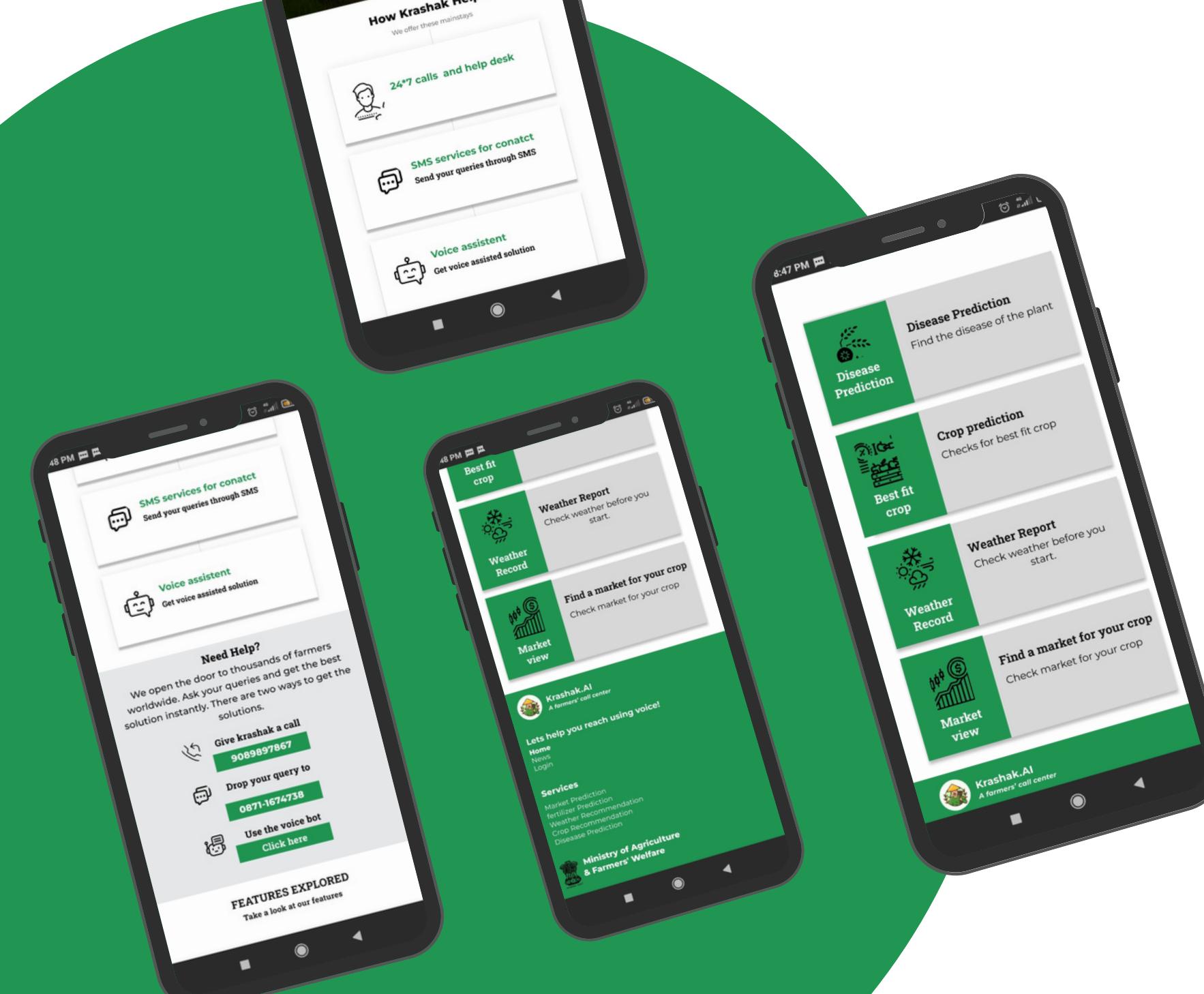


Features

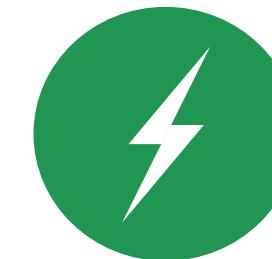
- Responsive on all devices**: Represented by a green circle with a tablet, smartphone, and desktop icons.
- Dashboard**: Represented by a black icon of a dashboard with a clock and graphs.
- SMS Notifications**: Represented by a yellow circle with a smartphone icon containing an envelope.



PROGRESSIVE WEB APP



The mobile-first approach
Works offline



2-3x faster loading time
Huge increase in
conversion rates.



Reduces server load

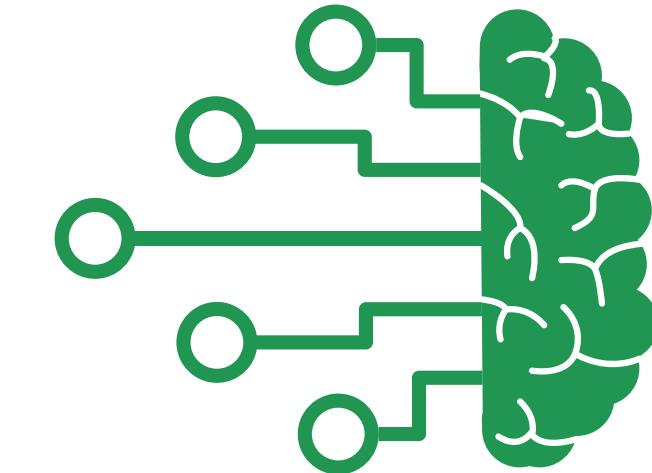
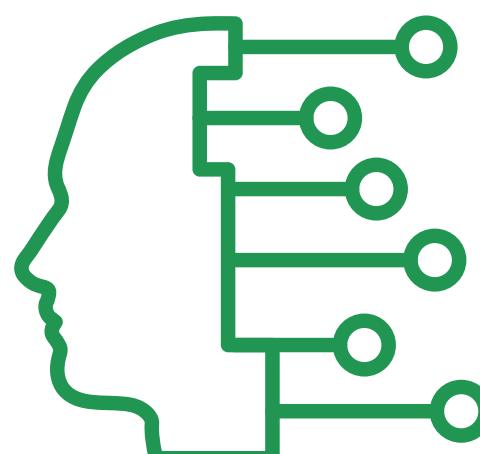


Uses headless architecture



Machine Learning Based Solution

- 1 Provides best solutions to the farmer's problem using NLP algorithm and knowledge base repository.
- 2 Recommendations analysis about the type of crops and fertilizers using ML algorithms.
- 3 Predicts crop disease and its cause.





Digitizing
Agriculture



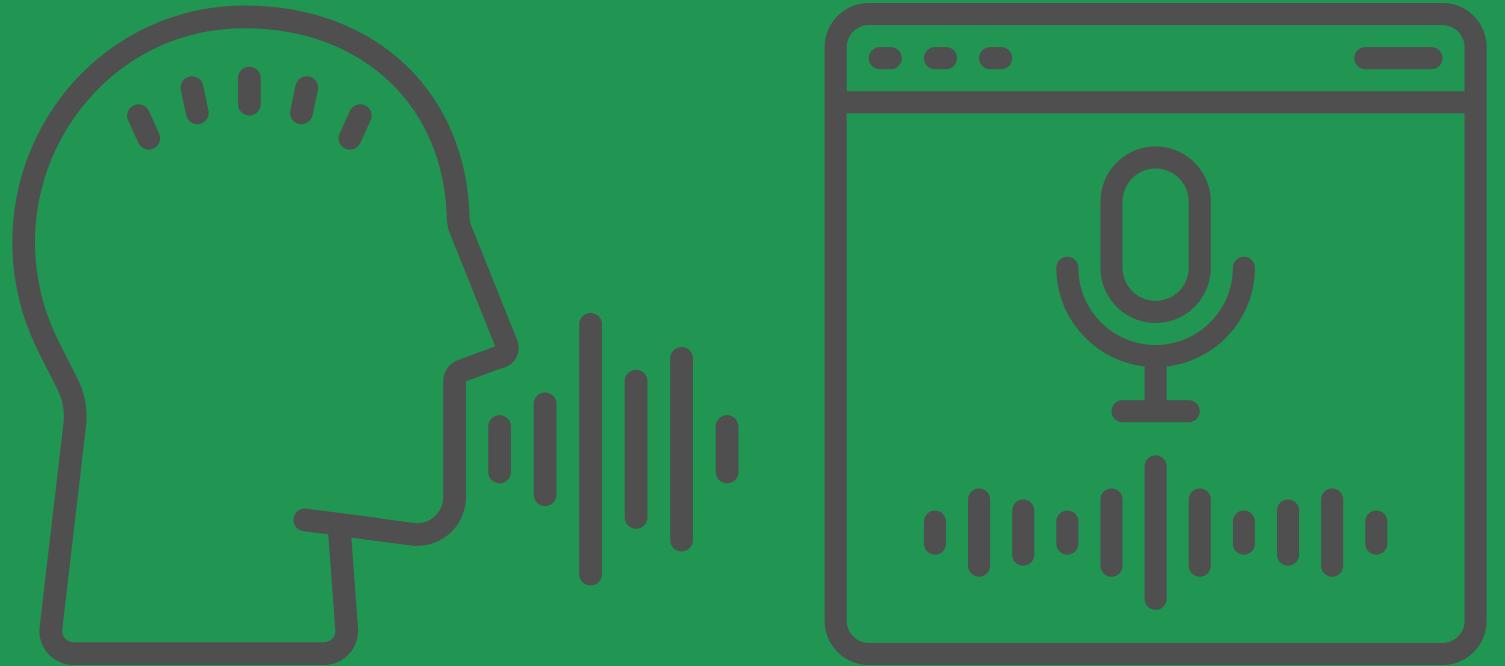
LOCALIZATION



Provides localized language support that helps farmers to understand the solution in any language easily.



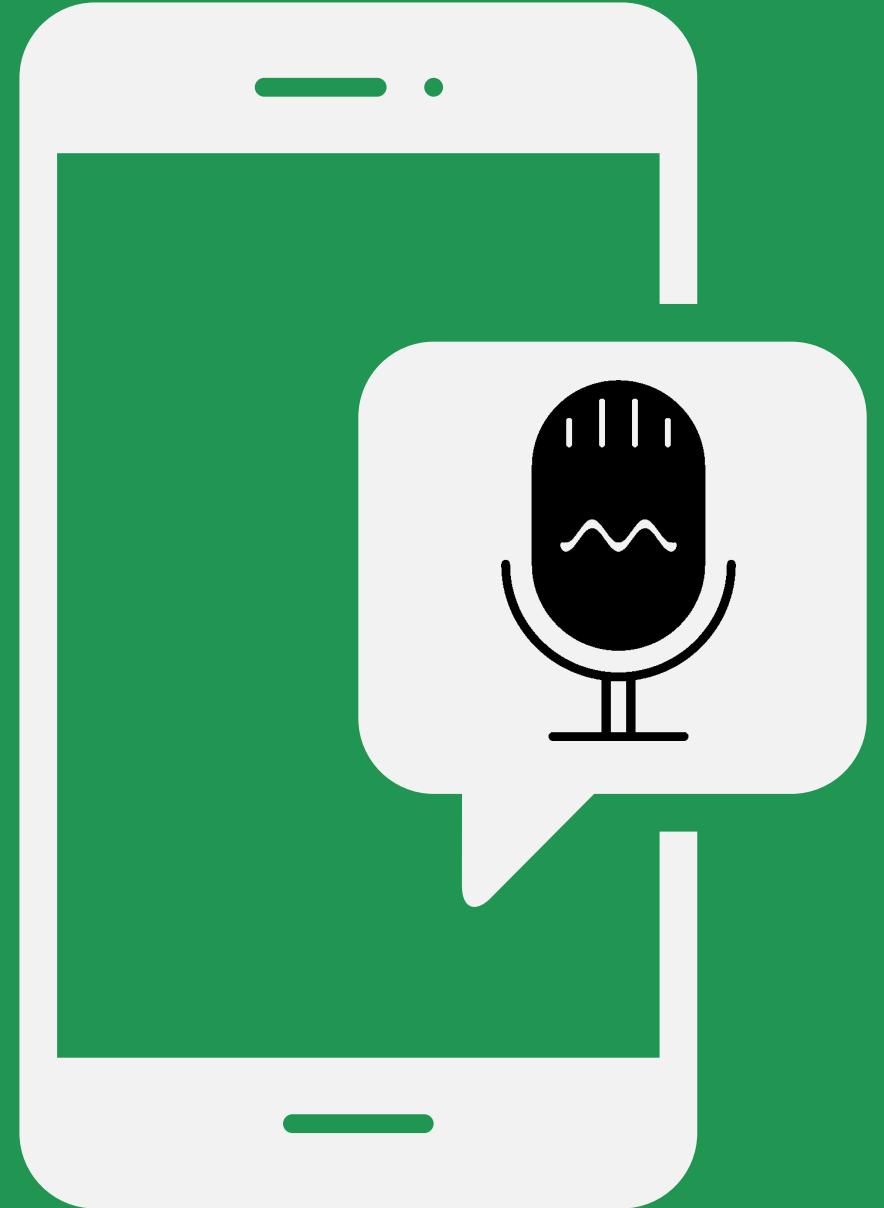
VOICE ASSISTANT



Voice Feature to increase the User Experience by searching any problem they face without hassling through words or typing.



SMS SERVICE



Voice messages are sent via SMS for Farmer's queries in their local languages on a range of topics.



CALL SERVICE



Farmers can ask queries through calls and solutions are sent as **automated calls** to their mobile phones.



FERTILIZER PREDICTION



1 Data Points:

- 1. Nitrogen
- 2. Phosphorous
- 3. Potassium
- 4. PH
- 5. Rainfall
- 6. City

2 Crop Type :

- 1. Maize
- 2. Sugarcane
- 3. Cotton
- 4. Tobacco
- 5. Paddy
- 6. Barley
- 7. Wheat
- 8. Millets
- 9. Oil seeds
- 10. Pulses
- 11. Ground Nuts

3 Output:

- 1. Urea
- 2. DAP
- 3. 14-35-14
- 4. 28-28
- 5. 17-17-17
- 6. 20-20
- 7. 10-26-26



CROP PREDICTION

Soil Type Input:

Black
Clayey
Loamy
Red
Sandy



Crops Predicted (22):

Jute	Watermelon	Mungbean
Blackgram	Muskmelon	Pomegranate
Orange	Apple	Coconut
Maize	Rice	Papaya
Lentil	Coffee	Wheat
banana	Chickpea	Rice
Mango	Kidney beans	Coffee
Grapes	Pigeon peas	
	Moth beans	



CROP DISEASE PREDICTION

40 Disease:

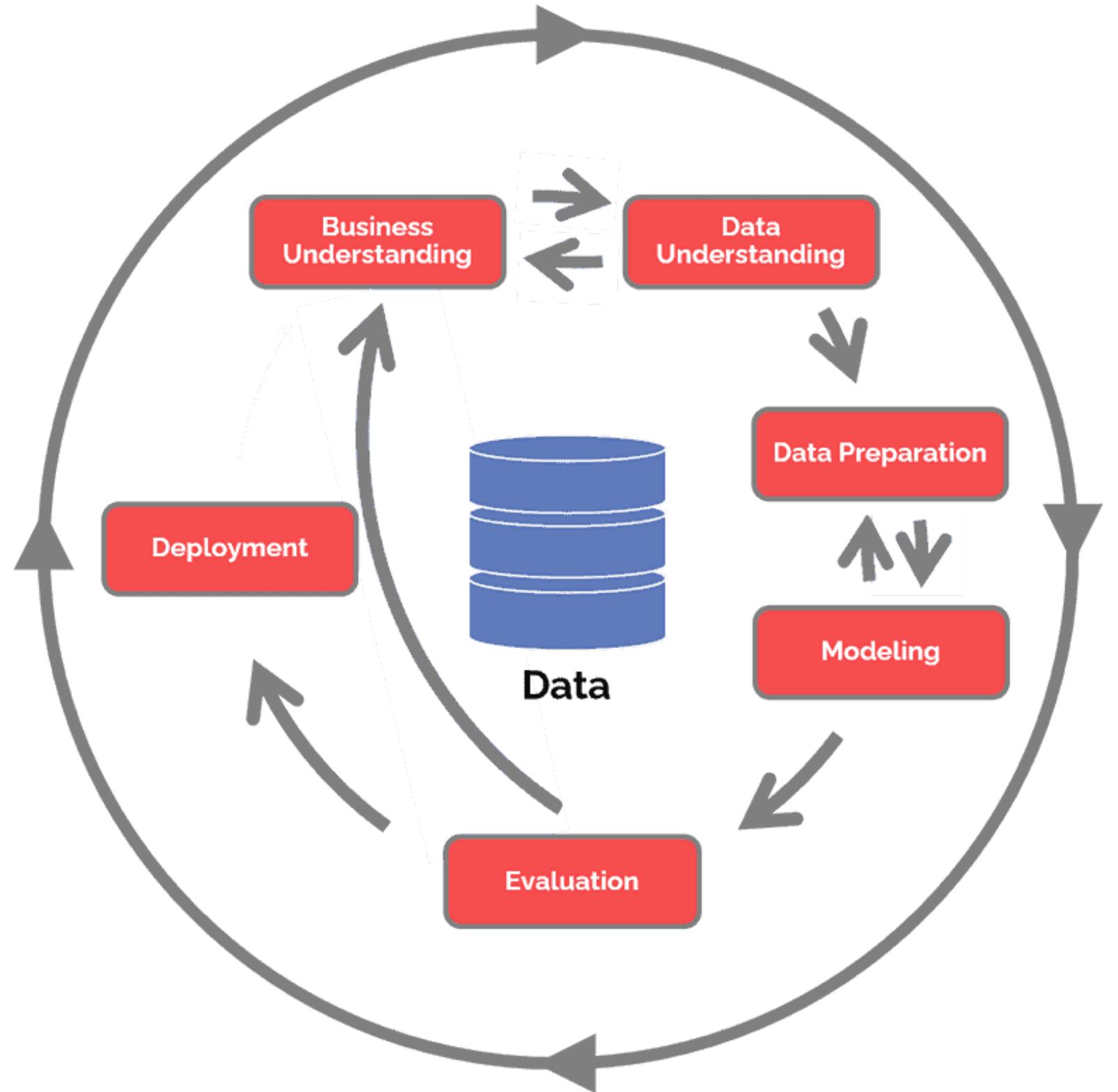
'Apple_Apple_scab',
'Apple_Black_rot',
'Apple_Cedar_apple_rust',
'Apple_healthy',
'Blueberry_healthy',
'Cherry_(including_sour)_Powder_y_mildew',
'Cherry_(including_sour)_healthy',
'Corn_(maize)_Cercospora_leaf_spot_Gray_leaf_spot',
'Corn_(maize)_Common_rust_',
'Corn_(maize)_Northern_Leaf_Blight',
'Corn_(maize)_healthy',
'Grape_Black_rot',
'Grape_Esca_(Black_Measles)',
'Grape_Leaf_blight_(Isariopsis_Leaf_Spot)',
'Grape_healthy',
'Orange_Haunglongbing_(Citrus_greening)',
'Peach_Bacterial_spot',

'Peach_healthy',
'Pepper,_bell_Bacterial_spot',
'Pepper,_bell_healthy',
'Potato_Early_blight',
'Potato_Late_blight',
'Potato_healthy',
'Raspberry_healthy',
'Soybean_healthy',
'Squash_Powdery_mildew',
'Strawberry_Leaf_scorch',
'Strawberry_healthy',
'Tomato_Bacterial_spot',
'Tomato_Early_blight',
'Tomato_Late_blight',
'Tomato_Leaf_Mold',
'Tomato_Septoria_leaf_spot',
'Tomato_Spider_mites
Two-spotted_spider_mite',
'Tomato_Target_Spot',
'Tomato_Tomato_Yellow_Leaf_Curl_Virus',
'Tomato_Tomato_mosaic_virus',
'Tomato_healthy'



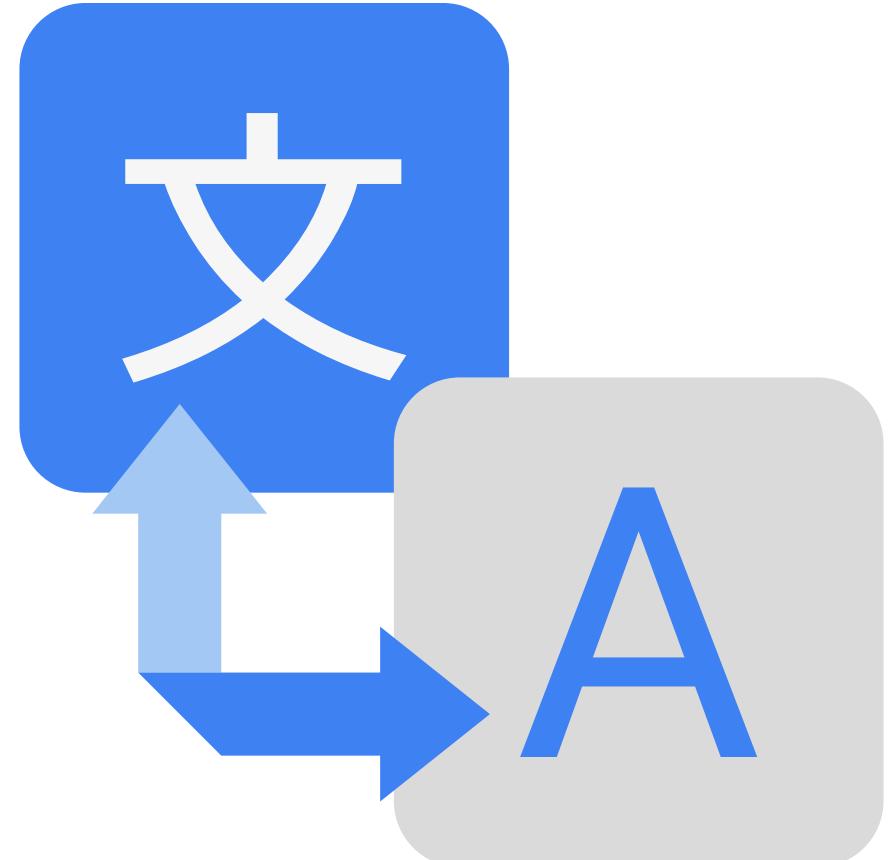


Machine Learning Workflow





Google Translation



Google Translate is a **multilingual neural machine** translation service that provides support for **100+** languages.



Conversational AI Platform



1. Instant Training & Onboarding
2. Hands-free
3. Human-like interactions
4. Converses in Your Business Vocabulary
5. Cross-platform support



FUTURE ROADMAP



TICKET

Raise a Ticket and track to get the solution if not found.



NEWS •

Separate screen for Information related to Farming.



COMMUNITY

Referral and rewards feature to boost growth & engagement.

The next steps and goals towards building an accurate solution.



OUR TEAM



RUDRAKSHI
Frontend Dev



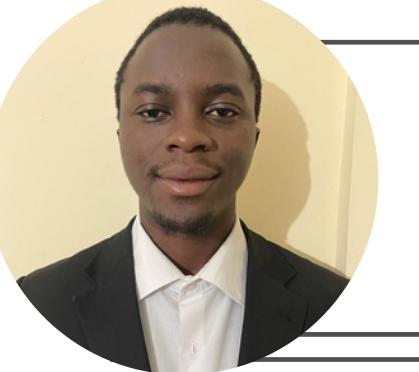
PEDRO
Backend Dev



TONY
Backend Dev



FRANK
Frontend Dev



SAHEED
ML Engineer



AYUSHI
UI/UX Designer



THANK YOU

*"If the Farmer is Rich,
then so is the Nation."*