

PLANT MEDIC(प्लान्ट मेडिक)



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Developed by: ISTEM LAB PVT LTD

This is a **Minimum Viable Product (MVP)**. Not all features and functionalities may be fully developed or included at this stage. The goal is to demonstrate the core capabilities of the solution.

CURRENT MARKET PRODUCT SITUATION

- Most existing AI models can predict potential crop diseases but lack precision in pinpointing the exact affected area.
- Models identify diseases broadly without offering specific insights into the extent or severity.
- Current systems rarely offer actionable solutions tailored to the detected disease and its severity.
- Many models require constant internet connectivity to function effectively.
- Existing systems often feature detailed and complex UIs that are not user-friendly for farmers.
- There is currently no AI-based crop disease solution tailored to Nepal's agricultural needs.

OUR OFFERING

- Pinpoints the exact location of the disease on the crop, enabling targeted interventions.
- Identifies not only that a disease is present but specifies exactly which disease it is.
- Provides potential remedies and action plans based on the affected area and other influencing factors.
- Works effectively without requiring internet connectivity, making it accessible in remote areas.
- Features an easy-to-use interface designed with farmers in mind.

DATA

This application has been developed with a focus on paddy diseases. The dataset used for this application was created in-house, involving tasks like creating masks, but is based on open-source data.

7000 plus images were used to train .

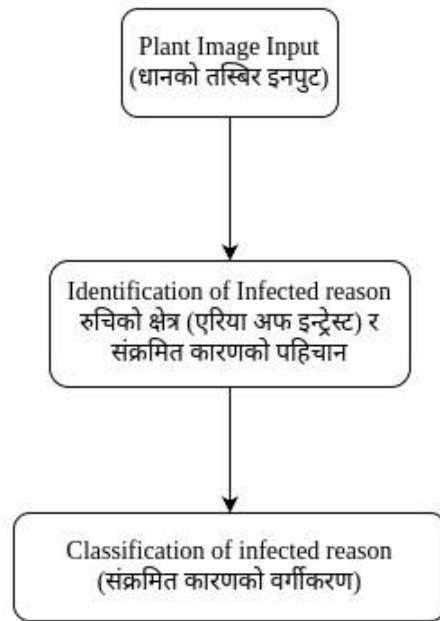


- **Normal:** सामान्य (No disease, healthy crop)
- **Hispa:** धान हिस्पा
- **Bacterial Leaf Streak:** पातको धर्सा रोग
- **Bacterial Panicle Blight:** बालाको झुल रोग
- **Dead Heart:** मुटु सुक्ने रोग
- **Tungro:** टुङ्ग्रो रोग
- **Brown Spot:** धानको खैरो धब्बा रोग
- **Bacterial Leaf Blight:** ब्याक्टेरियल झुल रोग
- **Blast:** धानको बाला रोग (ब्लास्ट)
- **Downy Mildew:** च्याउजन्य रोग

धानको रोगहरूलाई वर्गीकरण (Classification) यस प्रकार गर्न सकिन्छ:

1. ब्याक्टेरिया सम्बन्धी रोगहरू:
 - ब्याक्टेरियल पात धर्सा (Bacterial Leaf Streak)
 - ब्याक्टेरियल बालुवा झुल (Bacterial Panicle Blight)
 - ब्याक्टेरियल पात झुल (Bacterial Leaf Blight)
2. दुसीजन्य रोगहरू:
 - ब्लास्ट (Blast)
 - खैरो धब्बा (Brown Spot)
 - फुस्रो च्याउ रोग (Downy Mildew)
3. किराजन्य क्षति (Pest Damage):
 - हिस्पा (Hispa)
 - मरेको मुटु (Dead Heart)
4. भाइरसजन्य रोगहरू:
 - टुङ्ग्रो रोग (Tungro)
5. सामान्य (Normal):
 - रोग वा क्षति नभएको स्वस्थ धान।

OUR APPROACH

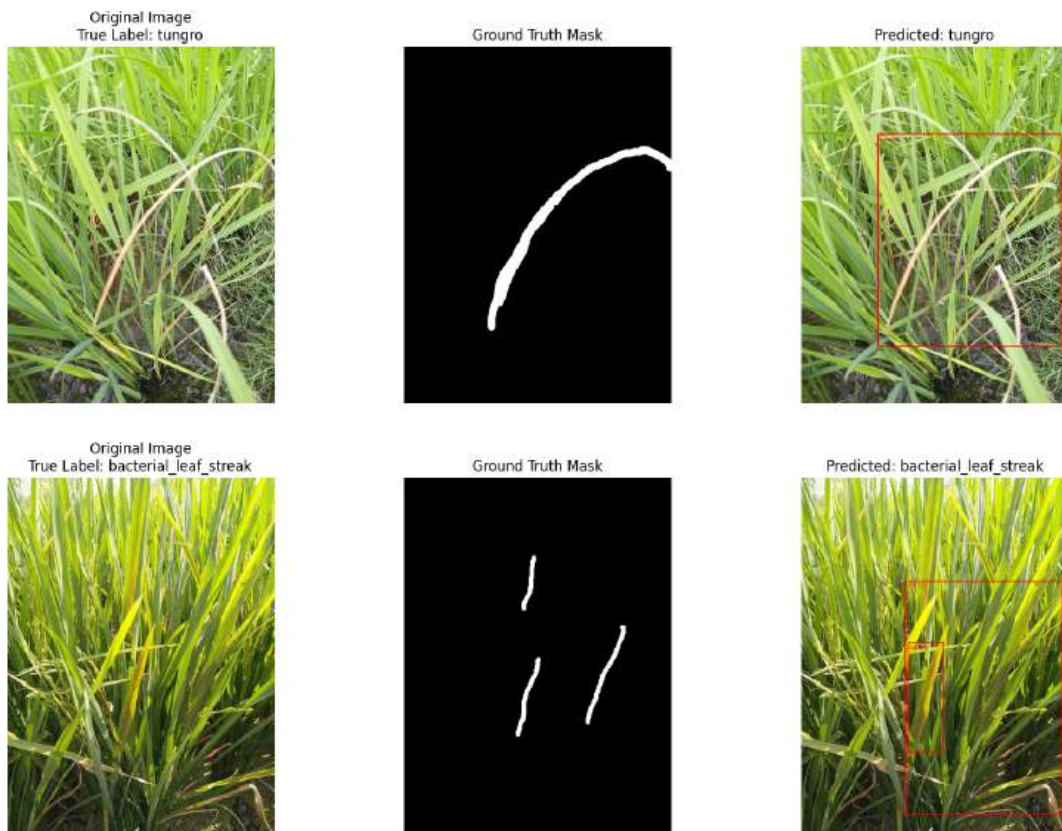


ACCURACY REPORT

class	total_samples	correct_samples	mistake_samples	correct_percentage	mistake_percentage
brown_spot	149	103	47	69.12751678	31.54362416
downy_mildew	89	32	56	35.95505618	62.92134831
dead_heart	148	143	5	96.62162162	3.378378378
tungro	146	107	41	73.28767123	28.08219178
bacterial_leaf_	68	28	39	41.17647059	57.35294118

blight					
blast	241	170	72	70.53941909	29.87551867
normal	109	89	20	81.65137615	18.34862385
bacterial_panicle_blight	77	54	24	70.12987013	31.16883117
hispa	255	215	40	84.31372549	15.68627451
bacterial_leaf_streak	79	53	26	67.08860759	32.91139241

RESULTS



Original Image
True Label: dead_heart



Ground Truth Mask



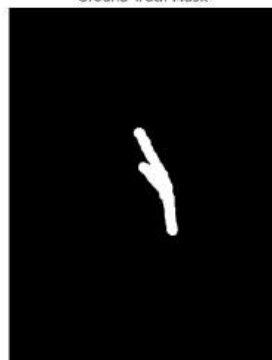
Predicted: dead_heart



Original Image
True Label: dead_heart



Ground Truth Mask



Predicted: dead_heart



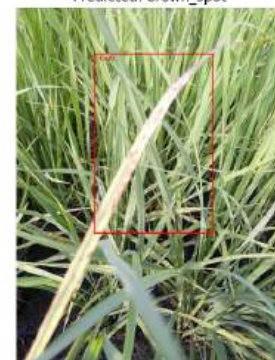
Original Image
True Label: brown_spot



Ground Truth Mask



Predicted: brown_spot



MISTAKES



PERFORMANCE

On device ai performance:

Operation Done	Time Taken To Predict (in Seconds)
1	38.35
2	40.25
3	35.33
4	39.45
5	40.86
6	38.57
7	39.86
8	40.45
9	39.88
10	37.12

SCREENSHOTS

