RESPIRATORY ILLNESS DETECTION IN POULTRY

Charumathi Narayanan, 21011102023

Madhumitha B, 21011102056

Trisha Balakrishnan, 21011102105

PROBLEM STATEMENT

For the small poultry flock owner, disease prevention is essential. Farmers must keep birds isolated from people, animals, and other birds so that they can minimize the loss of productivity. This is particularly difficult because these respiratory illnesses are highly contagious and spread quickly.

In order to prevent the illness from affecting the entire coop, the respiratory illness must be diagnosed at the earliest.

A normal mortality rate in a poultry farm is 1-5%. Risks of poultry farming in India include:

- Frequent disease outbreaks
- High cost of medication and vaccines
- Insufficient funds by most farmers
- Lack of quality feed

SDG

Life on Land (SDG 15): Poultry management can have implications for land use and biodiversity, especially if it involves sustainable land management practices

Zero Hunger (SDG 2): This goal aims to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

Responsible Consumption and Production (SDG 12): This goal emphasizes the need to ensure sustainable consumption and production patterns. Poultry management projects that incorporate sustainable practices, such as efficient resource use and waste reduction, align with SDG 12.

SOLUTION

- Record clips of chicken clucks at night, when the sound of machinery is low

- Analyze the sound clips to differentiate healthy chickens from those sick with respiratory illnesses by recognizing rale sounds

- This will be done by training a model

IMPACT AND BENEFITS

- Fewer chickens with respiratory illness, so net loss is lower.

- Lower cost for medication and vaccines since fewer chickens need to be tended to.

- High ROI

- Enhanced food security

- Reduced risk of market disruption

- Enhanced reputation and customer trust

- Long term sustainability

- Potential for export opportunities
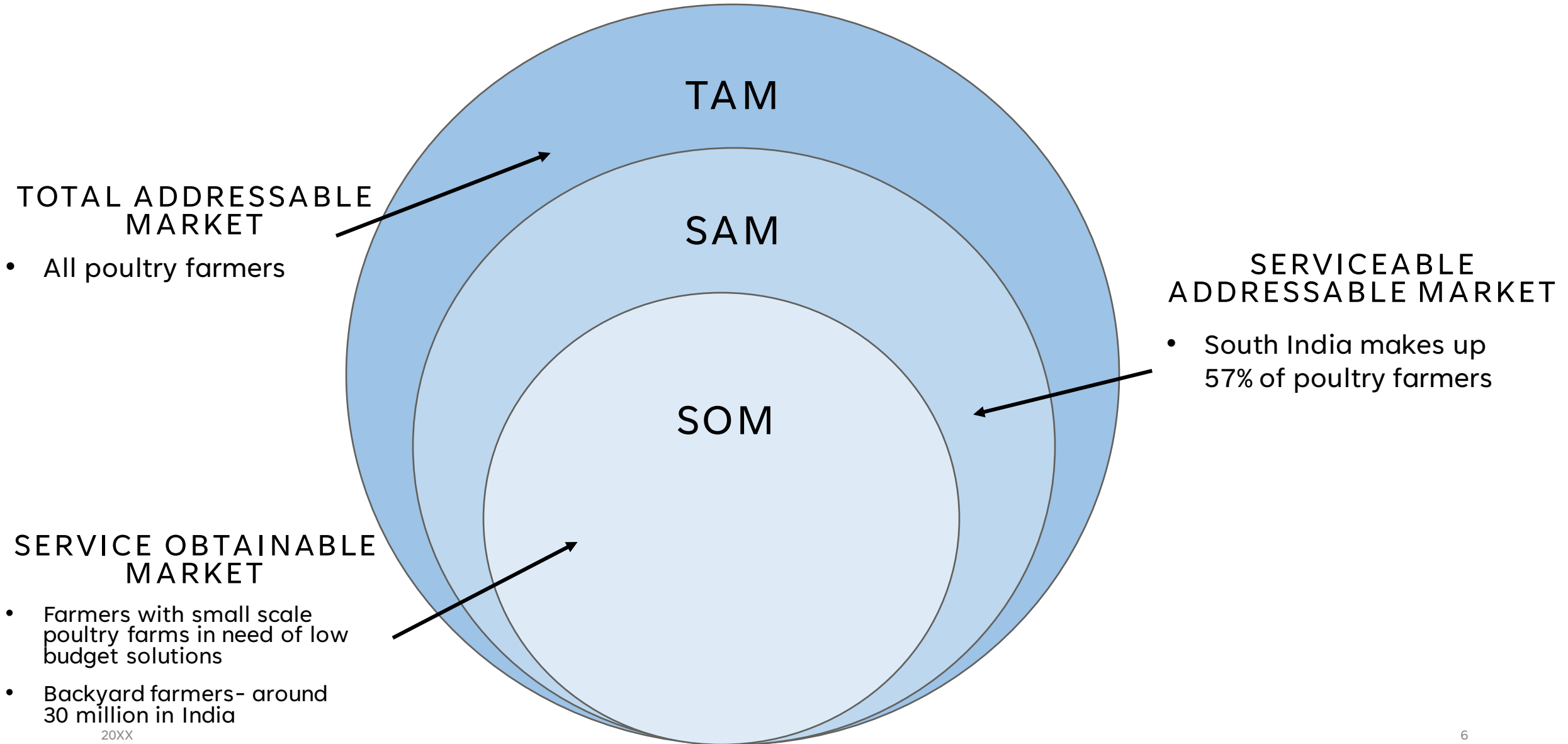
Hardware

- Arduino UNO (₹600)

- Microphone (₹270)

Software

- TensorFlow

- Python

- Matplotlib

- Flask

- HTML/CSS

- Keras

Cost/per batch of chickens = ₹870

TAM SAM SOM

TAM

SAM

SOM

TOTAL ADDRESSABLE MARKET

- All poultry farmers

SERVICEABLE ADDRESSABLE MARKET

- South India makes up 57% of poultry farmers

SERVICE OBTAINABLE MARKET

- Farmers with small scale poultry farms in need of low budget solutions

- Backyard farmers- around 30 million in India

FUTURE SCOPE

- The model can be trained with additional parameters such as weight and body temperature to determine whether a hen is about to lay eggs.

- Additional parameters can be taken into consideration to tell us how susceptible a chicken is to illness.

- It can also be modified and trained with different datasets to diagnose respiratory illness in other farm animals.