WEED DETECTION IN AGRICULTURE FIELD USING DEEP LEARNING

MAIN PROJECT

Department Of MCA, MES College Of Engineering,Kuttippuram

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CONTENTS

INTRODUCTION

The growths of invasive weeds are hard to control as it grows fast and compete with another crop aggressively. Fungi bacteria and nematodes may be introduced and this is difficult to control and causing the grower to decrease harvest yield and revenue. It is costly to destroy the weed with herbicide and reduce the margin of the cultivator. One of the most daunting challenges is weed control. Weeds are competing with crops for sunlight and water. Cultural practices can minimize infestation, known as suitable irrigation, fertilization and mowing. However, herbicides can offer the maximum effective feed controlling process. Dyrmann, Christiansen [13] has experimented the identification and recognition of weeds under natural field conditions at early growth states remains a research subject with unresolved problems.

Depending not only on the growth stage, but also on external factors such as wind, light and nutrition, weed seedlings change appearance, indicating that optimal algorithms for identification and recognition should be able to cope with such changes. Various weed classification strategies have various criteria for the quality of segmentation. If the purpose is to use shape-based features to decide the species to which a plant belongs. In addition, the plant to be included to preserve sharp edges in the segmented image. Deep learning is one of the newest and most studied technologies nowadays. It is a tool used to build intelligent systems as close to human brain as possible. This has a huge influence on all sorts of fields, such as video, audio and image
processing . Also, agriculture is the oldest and most important practice of humanity of survival. Population growth in recent years, has led to a greater demand for agricultural products. Automation is being automated to fulfill this demand without exhausting the environmental resources that agriculture uses .

Agriculture is one such example, where automation has found solutions to some of the challenges farmers face on a daily basis, such as infestations of crop diseases, weed management, pesticide control, lack of drainage facilities and absence of storage management.

EXISTING SYSTEM

Deep learning techniques applied to digital photographs can help distinguish between crops and weeds beyond the limitations of conventional image processing. A **deep convolutional neural network (DCNN)** is a type of artificial intelligence that is extensively utilized in recent years.

PROPOSED SYSTEM

Weeds are aggressive, computing for light, water, nutrients and space for crops, garden plants or lawn grass.Management of weeds usually consists of spraying herbicides in the entire agricultural sector. Most are fast growers and can take over many of the fields in which they are located. A fast-growing area of research today is artificial intelligence, specifically deep learning. Object recognition, making use of computer vision, is one of its numerous applications. This work suggests a deep learning with image processing-based framework to classify,various crops and weeds. A deep convolutional neural network (CNN) architecture is developed to implement this classification with improved accuracy by increasing the deep layers as compared to the existing CNN

MODULE DESCRIPTION

ADMIN

1)LOGIN
2) ADD AND MANAGE EXPERTS
3) VIEWUSERS
4) ADD AND MANAGE GOVERNMENT POLYCIES
5) ADD AND MANAGE CROP DETAILS
6) ADD NOTIFICATION
7) VIEW COMPLAINTS AND SEND REPLYSZ

2.EXPERTS

1)LOGIN
2)ADD AND MANAGE DATASET
3)CHAT WITH USERS
4)ADD NEW FARMING METHOD
5)ADD FERTILIZER DETAILS

3.USERS

REGISTRATION
LOGIN
CHAT WITH ADMIN
VIEW NEW FARMING METHOD
VIEW FERTILIZER DETAILS
VIEW GOVERNMENT POLICIES
VIEW CROP DETAILS
VIEW NOTIFICATIONS
SEND FEEDBACK
SEND COMPLAINTS AND VIEW REPLY
PREDICTION

DEVELOPING ENVIRONMENT

HARDWARE INTERFACES

The selection of hardware is very important in the existence and proper working of any software. Then selection hardware, the size and capacity requirements are also important. ·

Processor: Intel Pentium Core i3 and above, 64 bits
· RAM: Min 3GB RAM
· HARD DISK: 10 GB

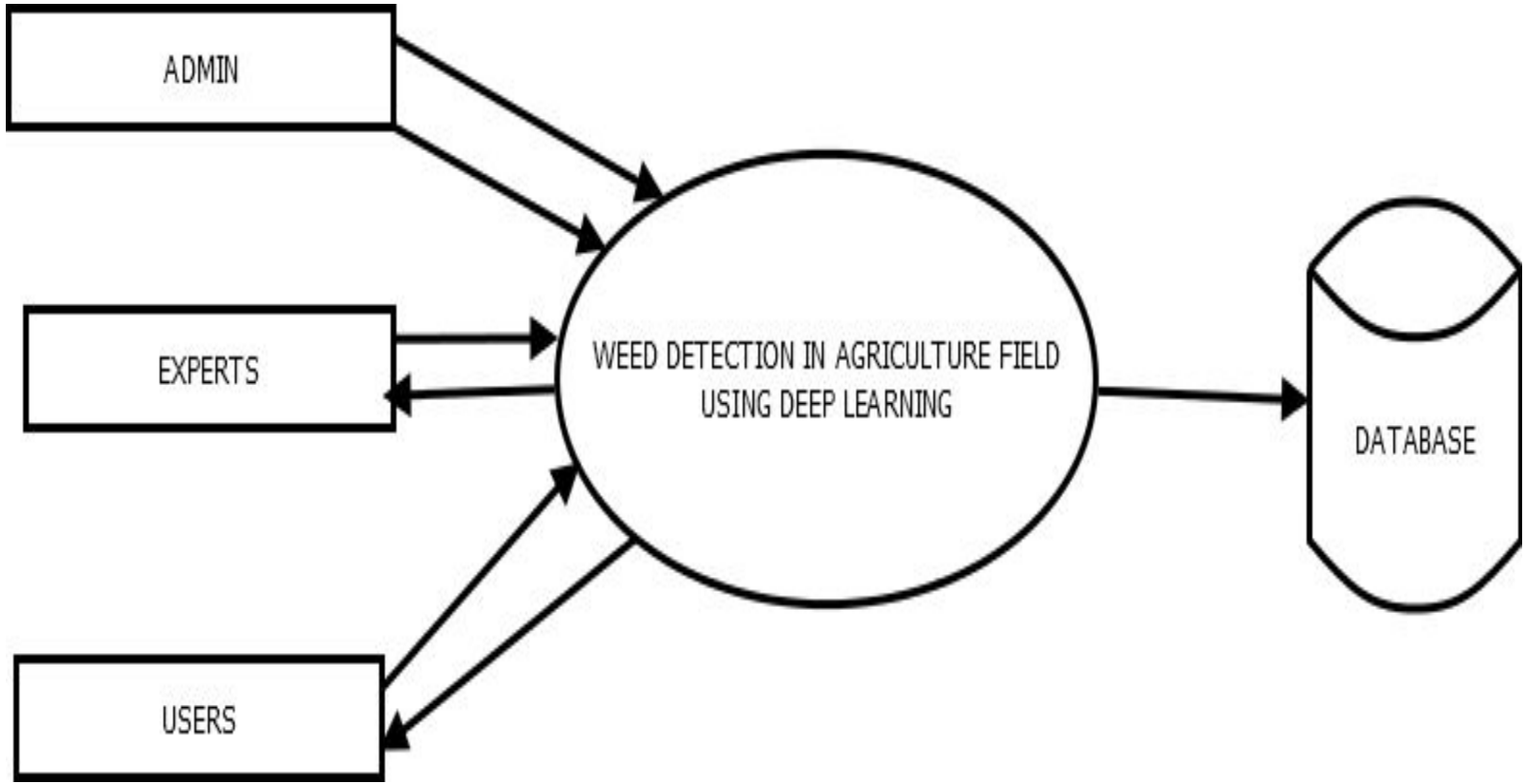
SOFTWARE REQUIREMENTS

OPERATING SYSTEM: WINDOWS 10

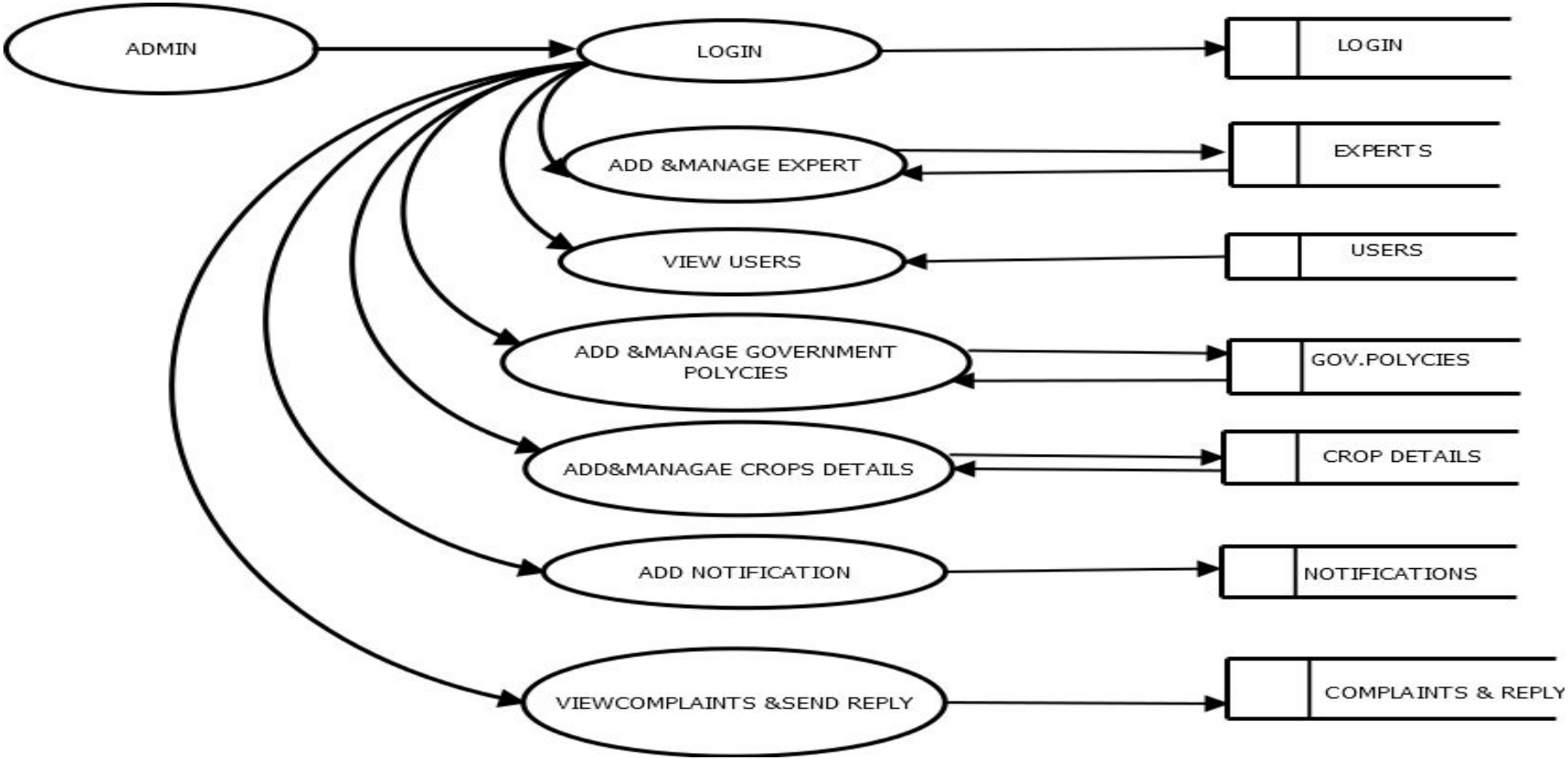
- FRONT END: HTML, CSS, JAVASCRIPT
- BACK END: MySQL
- IDE USED: JetBrains PyCharm, Android studio
- TECHNOLOGY USED: PYTHON JAVA
- FRAMEWORK USED: Flask

DATA FLOW DIAGRAM(DFD)

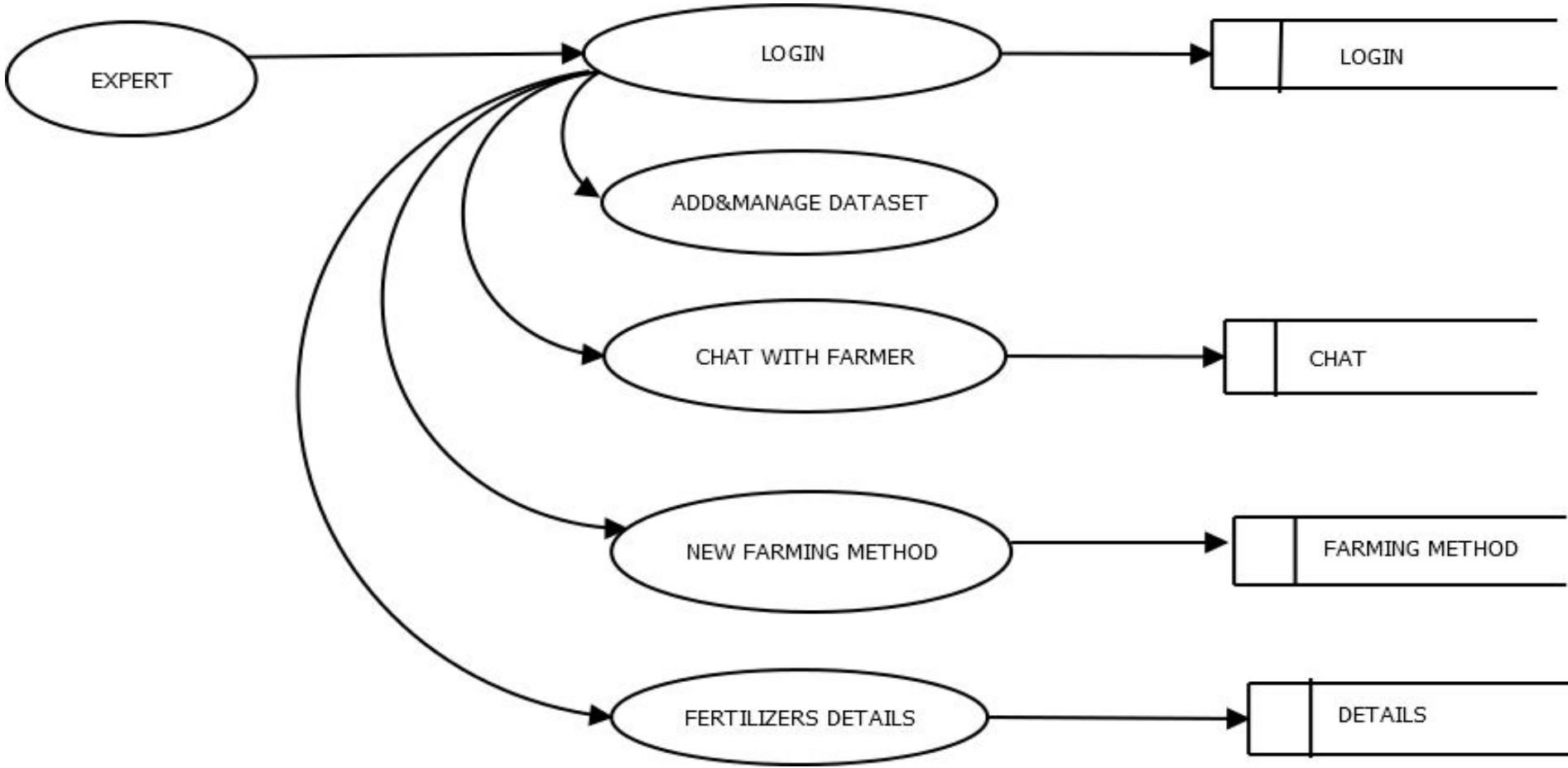
LEVEL 0

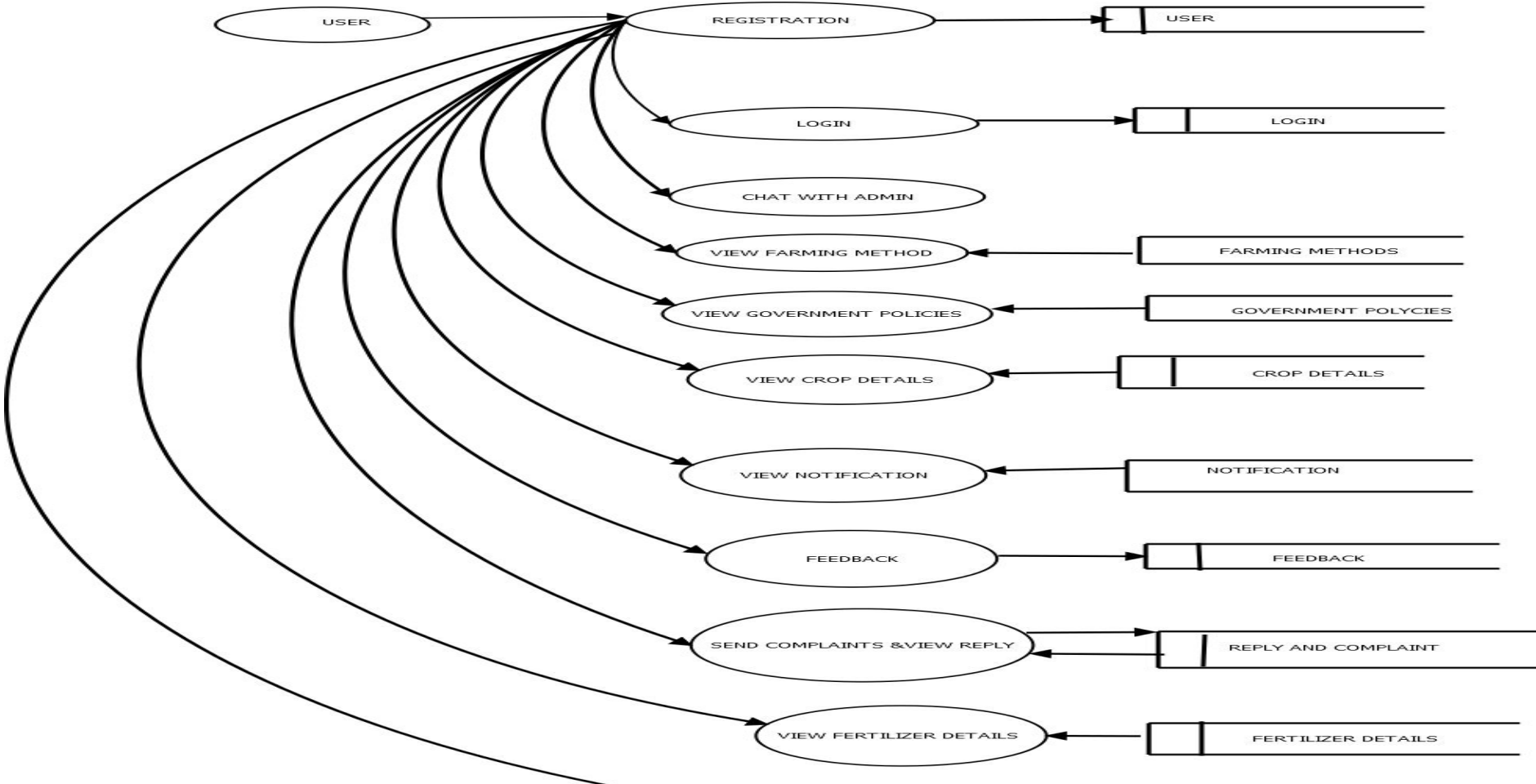


LEVEL 1


ADMIN
LOGIN
LOGIN
ADD &MANAGE EXPERT
EXPERTS
VIEW USERS
USERS
ADD &MANAGE GOVERNMENT POLYCIES
GOV.POLYCIES
ADD&MANAGAE CROPS DETAILS
CROP DETAILS
ADD NOTIFICATION
NOTIFICATIONS
VIEWCOMPLAINTS &SEND REPLY
COMPLAINTS & REPLY

LEVEL 2


EXPERT
LOGIN
LOGIN
ADD&MANAGE DATASET
CHAT WITH FARMER
CHAT
NEW FARMING METHOD
FARMING METHOD
FERTILIZERS DETAILS
DETAILS


USER
REGISTRATION
USER
LOGIN
LOGIN
CHAT WITH ADMIN
VIEW FARMING METHOD
FARMING METHODS
VIEW GOVERNMENT POLICIES
GOVERNMENT POLYCIES
VIEW CROP DETAILS
CROP DETAILS
VIEW NOTIFICATION
NOTIFICATION
FEEDBACK
FEEDBACK
SEND COMPLAINTS &VIEW REPLY
REPLY AND COMPLAINT
VIEW FERTILIZER DETAILS
FERTILIZER DETAILS

USER STORY

Stor y ID	As a<Type of user>	I want to	So that I can
1	Admin	Login	Login successful with correct password and username
2	Admin	Add and manage	Add and manage the experts
3	Admin	view	View the users
4	Admin	Add and manage government polycies	Add and manage government Polcies to users
5	Admin	Add and mange crop details	Add and manage crop details to users
6	Admin	Add notification	Add notifications to users

7	Admin	Login	View complaints by the user and send reply
8	Expert	Add and manage	Login with username and password
9	Expert	view	Direct the dataset
10	Expert	Add and manage government polycies	Chat with user
11	Expert	Add and mange crop details	Add new farming method to the user
12	Expert	Add notification	Add fertilization to the user
13	User	Login	Register the user
14	User	Login	User login to the site
15	User	Chat	Chat with expert
16	User	View farming method	View farming method added by expert

17	User	View government polycies	View government polycies added by the admin
18	User	View crop details	View crop details added by admin
19	User	View notification	View notification by admin
20	User	Send feedback	Send feedback to admin
21	User	View fertilization details	View fertilization detail by admin
22	User	Prediction	Predict the weed condition
23	User	Send complaints and view reply	Send complaints to admin and view reply

PRODUCT BACKLOG

User story id	Name	Priority
1	Login	HIGH
2	Add and manage	MEDIUM
3	View feedback	MEDIUM
4	Add and manage government polycies	MEDIUM
5	Add and mange crop details	MEDIUM
6	Add notification	MEDIUM

7	Login	HIGH
8	Add and manage	MEDIUM
9	view	HIGH
10	Add and manage government polycies	HIGH
11	Add and mange crop details	MEDIUM
12	Add notification	HIGH
13	Login	HIGH
14	Login	HIGH
15	Chat	MEDIUM
16	View farming method	HIGH
17	View government polycies	HIGH

18	View crop details	HIGH
19	View notification	HIGH
20	Send feedback	MEDIUM
21	View fertilization details	HIGH
22	Prediction	HIGH
23	Send complaints and view reply	MEDIUM

PROJECT PLAN

USER STORY ID	SPRINT	START DATE	END DATE	DAY	STATUS
1 2 3 4 5 6	**SPRINT 1**	07/02/2023	28/02/2023	21	PLANNED
7 8 9 10 11	**SPRINT 2**	01/03/2023	15/03/2023	15	PLANNED

USER STORY ID	SPRINT	START DATE	END DATE	DAY	STATUS
12 13 14 15 16 17	**SPRINT 3**	16/03/2023	16/04/2023	28	PLANNED
18 19 20 21 22 23	**SPRINT 4**	17/04/2023	15/05/2023	27	PLANNED