ATMIYA UNIVERSITY

IoT FOR HEALTHY ECO-SYSTEM

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in

ENGINEERING & TECHNOLOGY

by

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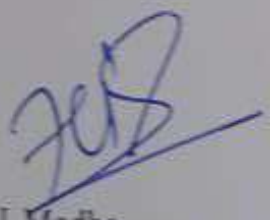

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"Coming together is a Beginning…. Keeping together is Progress…. Working together is a Success"

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Contents

Title	Content	Pg. No.
	Declaration by Research Scholar–Originality of Research Work	I
	Certificate of Supervisor	II
	Thesis Approval Form	III
	Declaration by Research Scholar – Submission of Thesis	IV
	Acknowledgement	V
	Contents	VII
	List of Figures	X
	List of Tables	XII
	Abstract	XIV
Chapter: 1	**Introduction**	**1**
	1.1 Motivation and Background	1
	1.2 Aim and Objectives	2
	1.2.1 Saving of Water	2
	1.2.2 Saving of Electricity & Decrease Pollution	2
	1.2.3 Save crops regarding moisture deficiency	3
	1.2.4 Make Eco-System healthy	4
	1.2.5 Develop a Remote Sensing and cost-effective system with accurate decision support arrangement.	4
	1.3 Overview of IoT based Healthy Eco-System	6
	1.4 Advantages and Applications of IoT Based Eco-System	7
	1.4.1 Effectual Resource Exploitation	8
	1.4.2 Decrease Human Monitoring	8
	1.4.3 Save Time	8
	1.4.4 Improve Data Gathering	8
	1.4.5 Enhance Security	8
	1.5 Organization of Thesis	8
Chapter: 2	**Literature Survey**	**11**
	2.1 Introduction	11
	2.2 Background	12
	2.2.1 Precision Agriculture	12
	2.2.2 Internet of Things	12

2.3 Recent Research 12
2.3.1 Plant Diseases Identification 16
2.3.2 Soil Moisture Prediction 30
2.4 Research Gaps 37
2.5 Encapsulation 38
Chapter: 3 Crop Diseases Identification 41
3.1 Introduction 41
3.2 Steps By Step Procedure for Crop Diseases Identification 42
3.2.1 Image Attainment 42
3.2.2 Image Pre-Processing 43
3.2.3 Feature Engineering 43
3.2.4 Classification 43
3.2.4.1 Diseases Identification Approaches 44
3.2.4.2 Image Processing Approach 44
3.2.4.3 ML/DL Approach 44
3.3 Some Admired ML/DL Techniques 45
3.3.1 Decision Tree (DT) 45
3.3.2 Support Vector Machine (SVM) 47
3.3.3 Convolutional Neural Network 48
3.4 Scratch Learning and Transfer Learning 49
3.5 Experimental Settings 51
3.5.1 Material Analysis 51
3.5.2 Model Development 52
3.5.3 CNN Approach 53
3.5.4 Optimizer Function 54
3.5.5 Model Developing Process 55
3.5.6 Test Result Examination for Maize Crop Dataset 56
3.5.7 Model Generalization 58
3.5.8 Results Analysis and Outcome Discussions 64
Chapter: 4 Soil Moisture Predictions 67
4.1 Introduction 67
4.2 Gallipoli Weather and Agriculture 69
4.3 Materials and Methods 73

	4.3.1 Dataset Summary	73
	4.3.2 Dataset Preprocessing and Performance Estimation	73
	4.3.3 Heatmap and Pair plot for Gallipoli Weather Dataset	78
	4.4 Model Development	79
	4.5 Steps By Step Procedure for Preparing a Model	82
	4.6 Outcomes with Hyper Parameter Tuning	83
	4.7 Linear Regression	84
	4.7.1 Different LR Techniques Analysis for Soil Moisture Prediction	86
	4.8 SVM Based Model	87
	4.9 Comparison of Different ML Based Models	88
Chapter: 5	**IoT Based Decision Support System**	**91**
	5.1 Introduction	91
	5.2 Tools and Components	91
	5.3 Schematic Design	92
	5.4 Forecasting Soil Moisture for Real Time Data	97
	5.5 Upshots for the Real Time Data	100
	5.6 Diseases Identification by Proposed DSS	101
	5.7 System Investigation for Jasminum Sambac	102
	5.7.1 Image Collection and Scrutinization	102
	5.7.2 Outcomes of Model for Jasminum Sambac	103
	Conclusion	**105**
	Summary	**107**
	Bibliography	**109**
Appendix A	**Plagiarism Report**	**133**
Appendix B	**Publication**	**134**

List of Figures

Figure No.	Name of the Figure	Pg. No.
Figure 1.1	IoT based Module	7
Figure 2.1	Straightforward Impression of IoT System	13
Figure 3.1	Four steps for classification of crop disease using a leaf image	42
Figure 3.2	Decision Tree Architecture	46
Figure 3.3	SVM Architecture	47
Figure 3.4	CNN Architecture	48
Figure 3.5	Original Maize Crop Leaves Images	51
Figure 3.6	Bar Plots of Accuracies of different Deep Learning Models	57
Figure 3.7	Plots of (A) Accuracy and (B) Loss of ResNet152v2 after Hyper Parameter Tuning	57
Figure 3.8	Original Crop Leaves Images of (A) Apple (B) Grapes (C) Tomato	59
Figure 3.9	Plots of (A) Accuracy and (B) Loss of ResNet152v2 after Hyper Parameter Tuning for Apple Crops	62
Figure 3.10	Plots of (A) Accuracy and (B) Loss of ResNet152v2 after Hyper Parameter Tuning for Grapes Crop	62
Figure 3.11	Plots of (A) Accuracy and (B) Loss of ResNet152v2 after Hyper Parameter Tuning for Tomato Crop	62
Figure 4.1	[A to D]: Plots of different weather parameter for Gallipoli-Turkey	74
Figure 4.2	Heatmap of all parameters for Gallipoli-Turkey Weather Dataset	76
Figure 4.3	Pair plot of all parameters for Gallipoli-Turkey Weather Dataset	77
Figure 4.4	Basic architecture of Deep Neural Network	79
Figure 4.5	[A to D] Prediction accuracy analysis of Model for Gallipoli-Turkey weather dataset with different Optimizer Function	84
Figure 4.6	[A to D] Prediction accuracy analysis of Model for Gallipoli-Turkey Weather Dataset with different Learning Rate	85
Figure 4.7	Prediction accuracy analysis of Model for Gallipoli-Turkey Weather Dataset with different LR Techniques	87
Figure 4.8	Prediction accuracy analysis of Model for Gallipoli-Turkey	88

	Weather Dataset with SVM Technique	
Figure 5.1	Schematic Design of Raspberry Pi based Module	93
Figure 5.2	[A] & [B] Physical View of Proposed System	94
Figure 5.3	[A to G] Cloud detail with Presentation of Different Parameter for Proposed System	96
Figure 5.4	Heatmap of Real Time Data for Proposed System	97
Figure 5.5	Pair plot of Real Time Data for Proposed System	98
Figure 5.6	[A to F] Plots of Outcomes of the Real Time Data with different Linear Regression Techniques, SVM, and Proposed ANN Model	100
Figure 5.7	Original Jasminum Sambac Crop Leaves Images	102
Figure 5.8	Plots of [A] Accuracy and [B] Loss for Diseases identification in Jasminum sambac	103

List of Tables

Table No.	Name of Table	Pg. No.
Table 2.1	Different methodology comparison of IoT-based smart farming	21
Table 2.2	Various research methodologies for crop disease recognition	29
Table 2.3	Several research methodologies for soil moisture prediction	37
Table 3.1	No. Of Samples for Training, Validation and Test for Maize Crop Dataset	52
Table 3.2	Confusion Matrix for The Prediction of Resnet152v2 Model Trained with Transfer Learning for Maize Crop	58
Table 3.3	No. Of Samples for Training, Validation and Test for Apple Crop Dataset	60
Table 3.4	No. Of Samples for Training, Validation and Test for Grapes Crop Dataset	60
Table 3.5	No. Of Samples for Training, Validation and Test for Tomato Crop Dataset	61
Table 3.6	Confusion matrix for the prediction of Resnet152v2 model trained with transfer learning for apple crop.	63
Table 3.7	Confusion matrix for the prediction of Resnet152v2 model trained with transfer learning for grape crop	63
Table 3.8	Confusion matrix for the prediction of Resnet152v2 model trained with transfer learning for tomato crop	63
Table 3.9	Model Parameters of Different Objects for Proposed DNN Model	64
Table 3.10	Comparison of Proposed DNN model with Previous Work	64
Table 4.1	Month wise Sea Temperature and Day Light analysis for Gallipoli-Turkey	72
Table 4.2	Gallipoli Weather data entities	73
Table 4.3	Analysis of weather parameters for Gallipoli-Turkey	75
Table 4.4	Soil moisture's Correlation with Temperature, Sunshine Duration, Shortwave Radiation and Relative Humidity for Gallipoli-Turkey weather Dataset	76
Table 4.5	Soil moisture's Correlation with Mean Sea Level Pressure,	76

	Soil Temperature, Wind Speed and Wind Direction for Gallipoli-Turkey weather Dataset	
Table 4.6	Performance Evaluation Parameters for soil moisture prediction	78
Table 4.7	Results of different hidden layer combination for Proposed ANN model for soil moisture prediction	81
Table 4.8	Proposed ANN model Analysis for different Optimizer Functions	83
Table 4.9	Proposed ANN model Analysis for different Learning Rates	83
Table 4.10	Performance analysis of Different Regression Technique for Gallipoli-Turkey Weather Dataset	86
Table 4.11	Outcomes of SVM based Model for Gallipoli-Turkey Weather Dataset	87
Table 4.12	Outcomes Comparison of different ML Approaches for Gallipoli-Turkey Weather Dataset	88
Table 5.1	Sensor Connection with Pins of Raspberry-Pie	92
Table 5.2	Statistical Analysis of Real Time Data	99
Table 5.3	Outcomes of the Real Time Data with Linear Regression, SVM and Proposed ANN Model	101
Table 5.4	No. Of Samples for Training, Validation and Test for Proposed System generated Dataset	103
Table 5.5	Confusion Matrix for The Prediction of Resnet152v2 Model Trained with Transfer Learning for Mogra Crop	103

ABSTRACT

The balance between living things—including people, plants, and animals—and their environment is referred to as ecological balance. In ecosystems, photosynthesis helps to create a healthy environment that stabilises the coexistence of all organisms. Relationships that are harmonious represent a desirable and healthy ecological equilibrium. Since humans have the highest capacity for thought among all living things, they are crucial to maintaining ecological equilibrium. All living things having access to enough food and remaining stable do so because there is ecological balance. Because it maintains the life, existence, and stability of the environment, this equilibrium is crucial.

Ecological equilibrium ensures that all organisms can survive. Because beneficial environments were developed, many species are still here today. Every organism will thrive and reproduce as expected if the ecology is favourable. They receive enough food to sustain their lives. Because it ensures the creatures' ongoing survival, ecological balance is equally crucial. It makes sure that no one species is abused or exploited. To avoid excessive forest damage, for instance, human activities like farming and resource extraction are restricted. Drought is a result of deforestation. Insufficient food is produced as a result of drought. Lack of food causes famine and later death, which decreases the number of some animals.

Ecological balance also ensures the stability of the environment and the organisms. It fosters an environment that is favourable for organism growth and proliferation. It improves an environment that is stable and free from ecological imbalances like flood, hunger brought on by a drought, windstorm that might wipe out everything, and predator overhunting. To assure the creation of a stable environment, this calls for group activities. The stability of the environment is impacted by human activity. Unwanted climate change is prevented by increasing tree cover and reducing deforestation rates. Maintaining desired population growth requires controlling the population of wild animals. Thus, a human can actively contribute to the development and maintenance of ecological equilibrium.

The planet exists because of the ecological equilibrium. The occupants of Earth, including humans, plants, animals, and other microscopic living things, are still here and thriving. These species are given the right conditions for growth and reproduction. The earth eventually

manages to create enough food for every species. Hunger brought on the drought is no longer an issue. This is due to the fact that there will never be a drought. Additionally, the environment is kept green. This indicates that the world has reached the equilibrium that will benefit and safeguard all living things.

The primary goals of this research are to improve agricultural productivity and make the eco-system sparkle. The remote sensing-based approach is used to improve the quick feedback system for decision support. Different Machine Learning and Deep Learning techniques can be used to provide subsequent executions enough time. Due to the fact that climate variables vary from region to region on earth, care should be made to avoid generalising the established model to the entire globe. In order for everyone to use the system, the cost is also considered.

With various prediction approaches, it should be possible to monitor various agricultural diseases at an early stage and treat them as needed to save the crop. The many phases of crop development have been recognised, and it should be possible to inject more neutrinos during specific times to boost production. In order to avoid crops from being destroyed by a lack of moisture in the farm, the damaging effects of drought will be eliminated by ongoing soil moisture monitoring. Additionally, it is feasible to conserve water and improve the health of the environment.