**NETWORK INTRUSION DETECTION SYSTEM**

**A PROJECT REPORT – PHASE I**

***Submitted by***

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***In partial fulfillment for the award of the degree***

***of***

# BACHELOR OF TECHNOLOGY

## IN

Computer Science and Engineering



**SCHOOL OF COMPUTING DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

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**(Deemed to be University)**

Academic Year 2023-2024

## Kalasalingam Academy of Research and Education

#### **KRISHNANKOIL 626 126**

#### **DECLARATION BY THE STUDENT**

I/We hereby declare that this project **“NETWORK INTRUSION DETECTION SYSTEM”** is my/our genuine work and no part of it has been reproducedfrom any other works.

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### A person wearing sunglasses Description automatically generated with low confidence

#### 

#### **BONAFIDE CERTIFICATE**

Certified that this project report **“NETWORK INTRUSION DETECTION SYSTEM”** is the bonafide work of “**U.Rohith(9920004138) ,k.Paramesh(9920004808) ,U.Anil Kumar(9920004263),P.Lakshmi Chaitanya(9920004261)”** who carried out the project work under my supervision.

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Submitted for the Project Viva-voce examination held on 27/4/2023

**Internal Examiner External Examiner**

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**School of Computing**

**Department of Computer Science and Engineering**

**Project Summary**

|  |  |  |
| --- | --- | --- |
| Project Title | Seed Quality Testing using CNN and GAN | |
| Project Team Members | 1. K.Paramesh(9920004808) 2. U.Rohith(9920004138) 3. U.Anil Kumar(9920004263) 4. P.Lakshmi Chaitanya(9920004261) | |
| Guide Name/Designation | Mr.K.Vignesh, Assistant Professor, Department of Computer Science and Engineering | |
| Program Concentration Area | Seed Quality Prediction | |
| Technical Requirements | **pycharm and html css and javascript** is used by the developer to complete the project. | |
| Engineering standards and realistic constraints in these areas: (Refer Appendix in page 4 of this doc.) | | |
| **Area** | **Codes & Standards / Realistic Constraints** | **Tick ✓** |
| Economic |  |  |
| Environmental | Seed Quality Testing has direct impact on the environment as it helps to promote sustainable agriculture practices and the conservation of natural resources. | **✓** |
| Social |  |  |
| Ethical |  |  |
| Health and Safety |  |  |
| Manufacturability |  |  |
| Sustainability |  |  |

**Realistic Constraints:**

**Environmental:**

Seed quality testing is an essential process for ensuring that high-quality and genetically diverse seeds are used for agricultural purposes. This has a direct impact on the environment as it helps to promote sustainable agriculture practices and the conservation of natural resources.

Here are a few ways in which seed quality testing is useful for the environment:

Improved crop productivity: Seed quality testing helps to identify and eliminate low-quality or diseased seeds, ensuring that only the best-quality seeds are used for planting. This results in improved crop productivity, which can help to reduce the need for expanding agricultural land, thus protecting natural ecosystems from destruction.

Conservation of biodiversity: Seed quality testing ensures that a wide range of genetic diversity is maintained in crop plants. This is essential for the conservation of biodiversity, as it helps to preserve the genetic resources of different crop varieties and their wild relatives. This can help to protect endangered species, maintain ecological balance, and promote long-term sustainability.

**Engineering standards:**

Seed quality testing is a critical step in ensuring that high-quality seeds are used for agricultural purposes, which is essential for sustainable agriculture practices and environmental conservation. The use of convolutional neural networks (CNN) and generative adversarial networks (GAN) can significantly enhance the accuracy and efficiency of seed quality testing. Engineering standards for seed quality testing using CNN and GAN may involve standardized data collection, pre-processing, and augmentation techniques, development of CNN and GAN models, and implementation of a testing protocol. By following these standards, we can develop an accurate, efficient, and reliable seed quality testing process that helps ensure the quality and genetic diversity of seeds, promote sustainable agriculture practices, and protect the environment.

**ABSTRACT**

Seed quality testing is a critical process in agriculture to ensure the production of high-quality crops.Traditional seed testing methods involve time-consuming and labor-intensive processes that are prone to human errors.This paper presents an approach to find The quality and properties of 6 different seeds such as cucumber,pea,soyabean ,tomato,watermelon and maize.This Methodology classifies the seed as excellent or good or average or bad or worst quality and also find the properties of the seeds based on the give input seed image.This methodology uses the deep learning algorithms such as Convolutional Neural Networks (CNN) and Generative Adversarial Networks (GAN) to test the quality of the seed based on the give input seed image.The CNN model achieved high accuracy rates in seed quality classification, outperforming traditional seed testing methods. Furthermore GAN model with the CNN model to generate synthetic seed images for training data augmentation.The GAN model learned to generate realistic synthetic seed images, thereby increasing the size and diversity of the training dataset.

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**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| CNN | Convolutional Neural Network |
| GAN | Generative Adversarial Network |
| AI | Artificial Intelligence |
| ML | Machine Learning |
| RGB | Red, Green, Blue (color model) |
| RELU | Rectified Linear Unit |
| FFNN | Feed Forwared Neural Network |

**CHAPTER I:**  **INTRODUCTION**

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