# HANDWRITTEN MATHEMATICAL EQUATION SOLVER

**MINI PROJECT REPORT**

Submitted By

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**APJ Abdul Kalam Technological University**

In partial fulfilment of the requirements for the award of the

Degree of

**MASTER OF COMPUTER APPLICATIONS**



**DEPARTMENT OF COMPUTER APPLICATIONS**

**MOHANDAS COLLEGE OF ENGINEERING &**

**TECHNOLOGY**

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**CERTIFICATE**

This is to certify that the report entitled “**HANDWRITTEN MATHEMATICAL EQUATION SOLVER**” submitted by **ANILA A L** (Reg No: MCT20MCA-2011) to the **APJ Abdul Kalam Technological University** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** is a bonafide record of the project work carried out by her under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Head of the Department Project Coordinator

Date : …………………

**DECLARATION**

I undersigned hereby declare that the project report “HANDWRITTEN **MATHEMATICAL EQUATION SOLVER** “, submitted for partial fulfilment of the requirements for the award of degree of Master of Computer Application of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by me under supervision of Prof. Mrs Jeeja G S. This submission represents my ideas in my own words and where ideas or words of others have been included. I have been adequately and accurately cited and referenced the original sources. I also declare that I have adhered to ethics of academic honest and integrity and have not misrepresented or fabricated my data or idea or fact or source in my submission. I understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not been previously formed the basis for the award of any degree, diploma or similar title of any other University.

Place: Trivandrum

Date:

ANILA A L

**TABLE OF CONTENTS**

|  |  |  |
| --- | --- | --- |
| **CHAPTER NO** | **TITLE** | **PAGE NO** |
|  | **ABSTRACT** |  |
| **1** | **INTRODUCTION** | **1** |
| **2** | **SYSTEM ANALYSIS** | **2** |
|  | 2.1 PROPOSED METHODOLOGY | **2** |
|  | 2.2 WORKFLOW DIAGRAM | **7** |
| **3** | **SOFTWARE REQUIREMENTS** | **8** |
| **4** | **SYSTEM REQUIREMENTS** | **12** |
| **5** | **SYSTEM DESIGN** | **13** |
|  | 5.1 DATA FLOW DIAGRAM | **13** |
| **6** | **DATASET COLLECTION** | **15** |
| **7** | **PRODUCT BACKLOG** | **16** |
| **8** | **SPRINT BACKLOG** | **18** |
| **9** | **SCREENSHOTS** | **19** |
| **10** | **CONCLUSION** | **21** |
| **11** | **REFERENCES** | **22** |

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BY

ANILA A L

**ABSTRACT**

With the advancement in technology, machine learning and deep learning are playing a crucial role in present times. Now, machine learning and deep learning techniques are being employed in handwriting recognition, robotics, artificial intelligence, and many more fields. Developing such system requires training our machines with data, making it capable to learn and make required prediction. Machine Learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed.  This project presents a **Handwritten Mathematical Equation Solver using Convolutional Neural Network** with some image processing techniques to achieve a decent accuracy of 80.46%. A**Handwritten Equation solver using CNN equation** can contain any digit from 0-9 and symbol +,x,- works on image**with** white background and digits/symbols are in black. It can run all the three ipynb files either separately or sequentially. A convolutional [neural network](https://deepai.org/machine-learning-glossary-and-terms/neural-network), or CNN, is a [deep learning](https://deepai.org/machine-learning-glossary-and-terms/deep-learning) neural network designed for processing structured arrays of data such as images. Convolutional neural networks are widely used in [computer vision](https://deepai.org/machine-learning-glossary-and-terms/computer-vision) and have become the state of the art for many visual applications such as image classification, and have also found success in [natural language processing](https://deepai.org/machine-learning-glossary-and-terms/natural-language-processing) for text classification.