Computer Vision Project Proposal

# Project Proposal

Group #: 5

Group Members: Aliyyah Jackhan, Mohammed Aadil, Jonathan Chacko

Project Title: OCR-Based Sudoku Puzzle Solver Using OpenCV and Python

Short Description:

The goal of this project is to create a computer vision-based Sudoku solver that extracts a Sudoku puzzle from an image, identifies existing digits using OCR (Optical Character Recognition), and solves the puzzle with an algorithm. The user submits a photo of a Sudoku puzzle, and the system applies the solution onto the original image. This project will utilize OpenCV for image preprocessing, pytesseract for OCR, and a backtracking algorithm for solving the puzzle.

# References / Existing Implementations:

1. <https://pyimagesearch.com/2020/08/10/opencv-sudoku-puzzle-solver-and-overlay/>

2. <https://www.geeksforgeeks.org/sudoku-backtracking-7/>

3. <https://nanonets.com/blog/ocr-with-tesseract/>

# Project Timeline:

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| --- | --- | --- |
| Main Components (Briefly Explain) | Tentative Completion Date | Assigned to (Name of Group Member) |
| Grid Detection and Image Preprocessing | Week 1–2 (July 13) | All Members |
| Digit Segmentation and OCR with Tesseract | Week 3 (July 20) | Aliyyah |
| Sudoku Solver (Backtracking Algorithm) | Week 4 (July 27) | Aadil |
| Overlaying Solution Back on the Original Image | Week 5 (Aug 3) | Jonathan |
| Final Integration, Testing, Documentation and UI | Week 6 (Aug 10) | All Members |