

Pen2Code



Al-generated Webpages from Hand-drawn Mockups

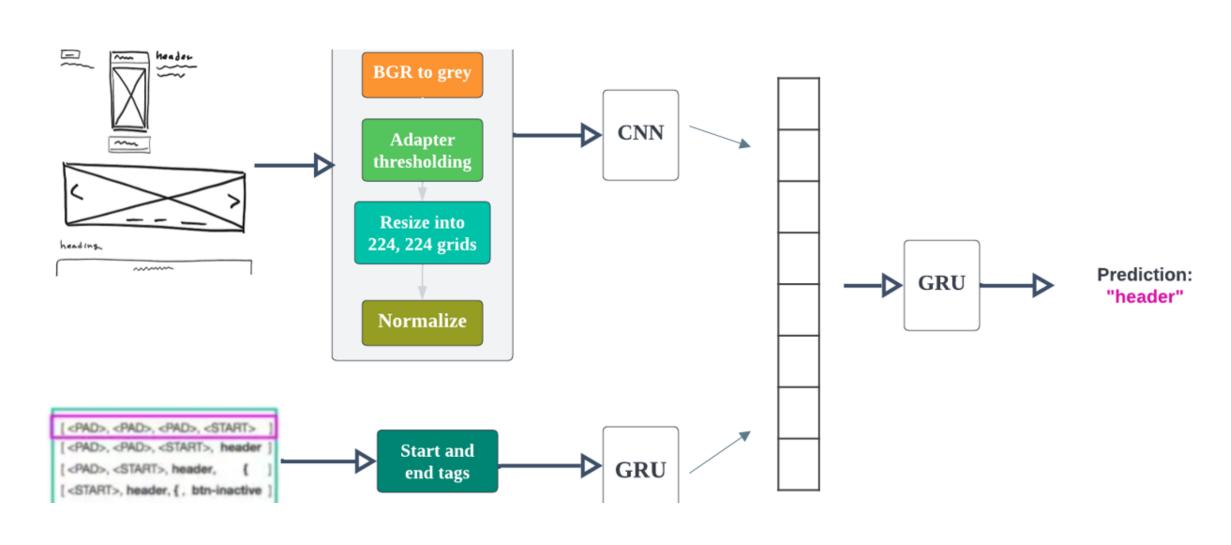
ABSTRACT

The front-end designing phase can often cause the software development life cycle (SDLC) to become timeconsuming and redundant. Deep neural networks can be used to automate repetitive tasks and improve efficiency. The proposed solution involves the use of AI to generate HTML and CSS files from user-uploaded webpage mockups, reducing development time to minutes. The system also includes options for applying themes and choosing images. The backend utilizes CNN architecture Resnet34 and Resnet101 to bridge the gap between design and development.

INTRODUCTION

Pen2Code is an innovative solution that uses Al to automate the process of front-end web development. It provides a user-friendly interface that allows users to upload hand-drawn mockups, which are recognized and converted into a corresponding HTML file with CSS styling. Pen2Code reduces loop cycles between designers and developers, saving time and resources and ensuring that the mobile/web application is coded the right way from the get-go, matching stakeholder's vision without any back-and-forth. It can also be used by anyone looking to get a basic web page built, making it an easy-to-use solution.

PROPOSED METHOD

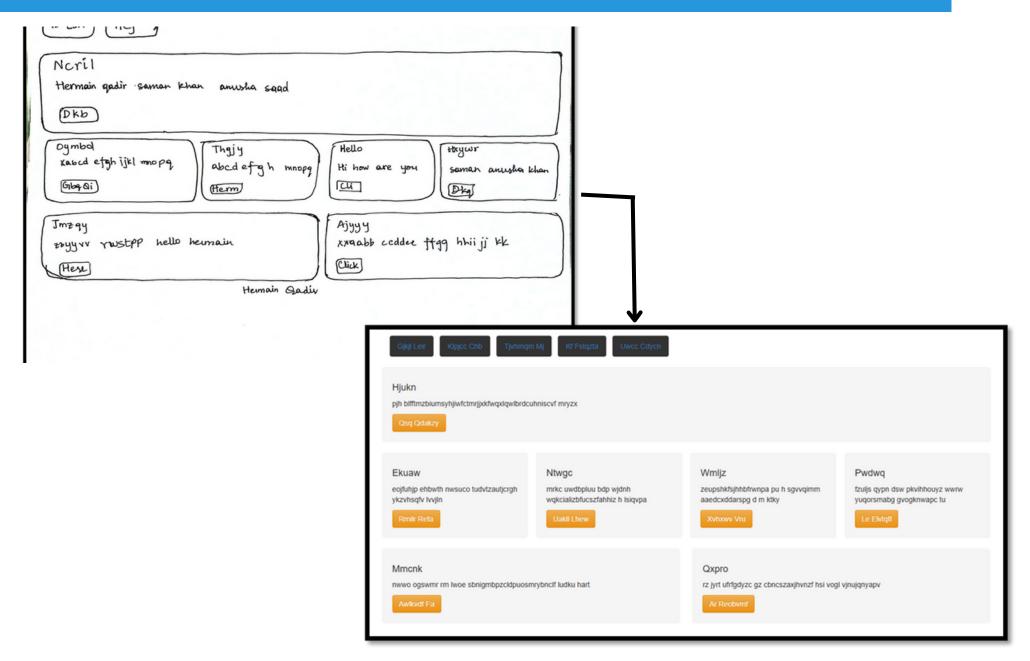


Providing the web-application with the following hand-drawn low-fidelity wireframe outputs the following HTML and CSS file to the user

OBJECTIVE

- Pen2Code automate and simplify front-end web development using Deep neural networks.
- User-friendly interface generates HTML and CSS from hand-drawn mockups
- Saves developers time and reduces loop cycles with designers.
- Easy-to-use solution for building basic web pages regardless of coding knowledge
- Transforms front-end web development into a streamlined and efficient process matching stakeholder's vision.

IMPLEMENTATION











CONCLUSION

The project developed a method for generating websites using a model architecture that involves computer vision and language models. The resulting webpages were found to be reasonably similar to human-produced ones, although the model has some limitations such as a limited element vocabulary and lack of dataset variation. Future work could involve expanding the vocabulary and dataset and using a GAN for realisticlooking images. The approach has potential applications in website prototyping and personalization.



SUPERVISOR: ZAIN-UL-HASSAN

Co-SUPERVISOR: KAAMLA SALMAN **MEMBERS**:

19K-0281 ANUSHA SAAD 19K-1517 HERMAIN QADIR **19K-0354 SAMAN KHAN**