

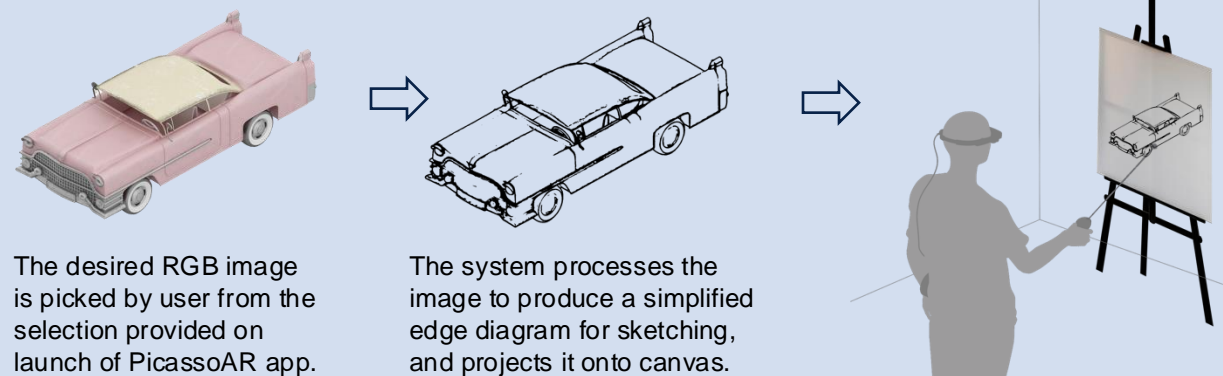
PicassoAR: Real-time Drawing Assistance

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1 Introduction

We aimed at developing an intuitive and user-friendly platform designed to simplify the process of learning to draw using Magic Leap 2 [1].



The user can then recreate the projected image with the help of the drawing guidance.

2 Method Overview

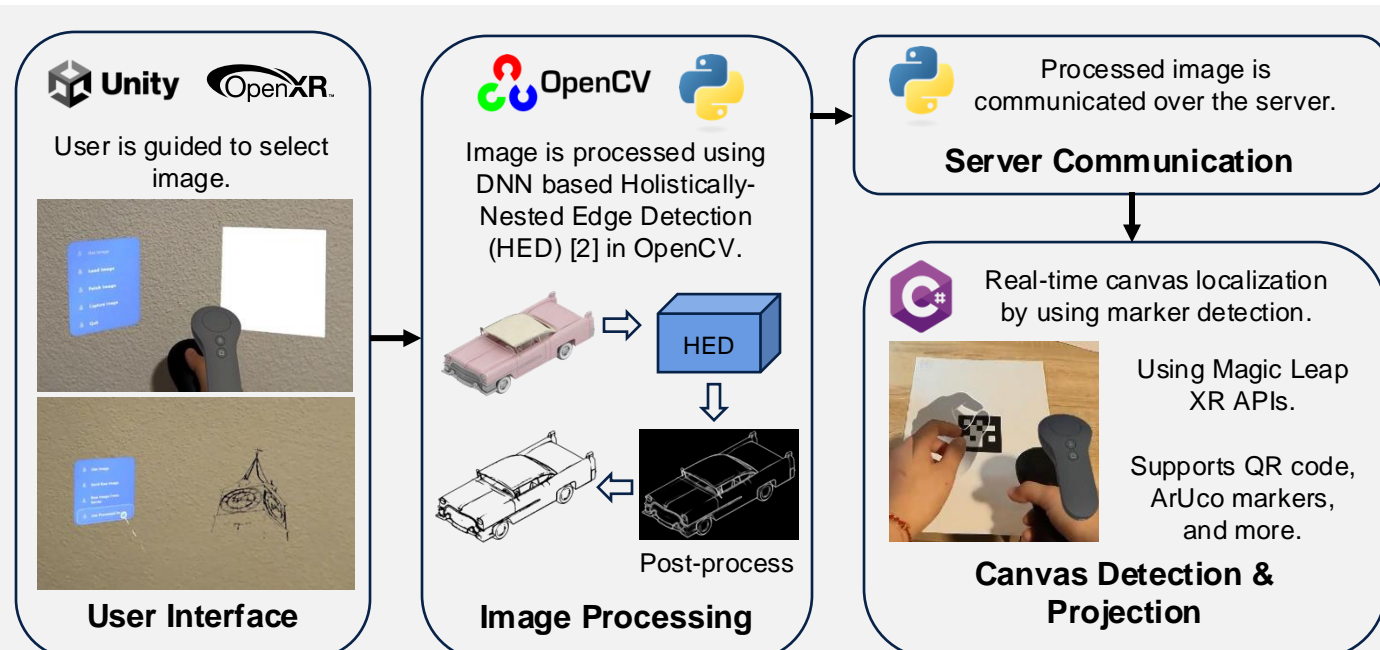
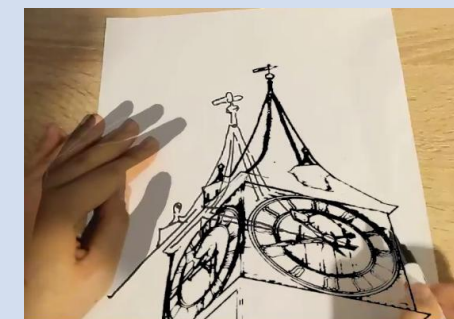


Diagram above presents a schematic overview of the technical pipeline implemented. Each stage required specific developmental tools, as represented by their icons. Each stage overviews the main tasks achieved within that step.

3 Results & Discussion



Image is loaded onto detected canvas.



The user is seen to trace alongside the guidance provided by the sketch image projected onto their canvas. Note: the image is seen to shift on the canvas as pictured above, which may prove detrimental to the learning process.



The result of user drawing, compared to the original sketch guidance. The structure of the drawing is highly comparable to the guidance, but we hypothesize that the shifting of the guidance image causes the user drawing to have certain mistakes.

4 Conclusion

This project shows a basic implementation of a drawing assistant using the Magic Leap 2 device, to help aid and accelerate the learning process of a novice artist. The app is shown to successfully give an augmented guidance to the user, where user may select the image based on their difficulty preferences.

5 Proposed Improvements

- The guidance may be broken down into a series of steps, however, since it is not a deterministic methodology to breakdown an image into such steps, the input of an expert teacher is required.
- Scheme for breaking down processed edge image into disjoint edges for step-wise proposal.
- Process user drawing and notify for errors – large deviations from proposed steps.
- Use LLMs for textual guidance at each step.

References

1. Magic Leap 2: Next-Gen Augmented Reality headset for professionals. Magic Leap. (n.d.). <https://www.magicleap.com/magic-leap-2>
2. Xie, S., & Tu, Z. (2015). Holistically-nested edge detection. In Proceedings of the IEEE international conference on computer vision (pp. 1395-1403).