How AutoCAD changed designing

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***Abstract*—This essay explores the profound impact of computer-assisted design (CAD) software, with a focus on AutoCAD, on various aspects of society. AutoCAD revolutionized the architectural and engineering industries by enabling digital drafting and modeling on personal computers. Its widespread adoption has transformed design processes, making them faster, cheaper, and more collaborative. AutoCAD allows engineers and architects to allocate more time to critical aspects of their projects, such as design innovation and safety considerations.**

Keywords—AutoCAD, architecture, engineering

I. INTRODUCTION

Computer-assisted design (CAD) software has changed many aspects of society. One of the biggest CADs is AutoCAD. The software lets users design and model objects. It initially allowed you to draft architectural and engineering plans on a computer. AutoCAD was released in 1982 and started disrupting the architecture industry and others very quickly. The company Autodesk produces and publishes AutoCAD. When they first released AutoCAD the big idea was to have a CAD software available on personal computers not just big mainframe computers. This push proved to be a very good idea because Autodesk's sales last year alone were 5.0 billion dollars [1].

II. IMPACT

The software is used worldwide by graphic designers, engineers, project managers and more, it's perhaps most associated with architecture, transforming the design process of countless firms over the past four decades [2]. Both my partners' parents are architects, their profession has been overhauled by the introduction of AutoCAD. When studying in university, they did all their drawing by hand and had to model buildings by constructing miniatures. Now that is all done on computers with the help of AutoCAD. Sometimes drawings are still done by hand and physical models are still made, but it is normally the last step instead of the first.

CAD's in general are widely used in lots of industries today because they cause the design process to be faster, cheaper and more collaborative. Once you know how to use AutoCAD you can draw up plans or designs much faster than by hand. Using AutoCAD makes editing your designs simpler, and the increased speed makes the industries using AutoCAD have lower costs. Lastly being on a computer and thanks to the internet work is more easily shared with everyone in a team.

The adoption of CAD software, particularly AutoCAD, has led to a paradigm shift in how design professionals allocate their time and resources. With the increased speed of drafting tasks, engineers and architects can devote more attention to critical aspects of their projects, such as design innovation, functionality optimization, and safety considerations [3]. This shift in focus not only enhances the quality of designs but also fosters a culture of continuous improvement within industries. Additionally, the streamlined design process facilitated by AutoCAD enables faster project turnaround times, allowing businesses to meet tight deadlines and respond swiftly to client demands. As a result, the widespread use of AutoCAD has not only lowered the barriers to entry for aspiring designers and firms but has also catalyzed a more dynamic and agile approach to design and engineering endeavours.

More recently AutoCAD has shifted to help with 3D design as well as 2D design. Building Information Modeling (BIM) is the newest way to model building and 3D designs. AutoCAD has integrated this new way to draft building plans in its software. A BIM lets you model buildings with objects, instead of a wall just being lines in the drafting software the software knows that it is a wall. This difference lets the software behave much more intelligently. Increasing all the impacts AutoCAD had initially, faster drafting and lower costs.

AutoCAD has had such an impact on the design industry that it is now taught in universities and even high schools. I learned to use AutoCAD in high school in a drafting course. Something that didn't exist forty years ago is now a standard being taught at schools around the globe because it is so pivotal to these industries.

III. CONCLUSION

In conclusion, the advent of computer-assisted design (CAD) software, particularly AutoCAD, has ushered in a transformative era in design industries and education. AutoCAD's inception in 1982 marked a significant milestone, revolutionizing the way architects, engineers, and designers conceptualize, visualize, and realize their ideas. With its user-friendly interface and robust capabilities, AutoCAD swiftly became an indispensable tool, reshaping workflows, streamlining processes, and fostering collaboration across disciplines.

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