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DEPARTMENT OF SOFTWARE ENGINEERING

Figma

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Introduction

Figma was founded in 2012 by Dylan Field and Evan Wallace who were graduates of Brown University. The idea for Figma started because Dylan and Evan believed that the tools that are used currently are outdated. They wanted a design process that is easy to use and also they wanted to make the design process more accessible collaborative .

Figma uses WebGl or web graphics library which is a technology that allow us to use 2D and 3D graphics to run in web browser. By using this technology Figma was able to deliver a web based platform that can perform as the desktop platforms .

Dylan and Evan spent years developing their idea and in 2015 the first version entered its beta phase. Figma officially launched to the public in 2016 . It gets a lot of users and become preferred choice of users.

Its prototyping tool was created in 2017 which allows stake holders to get the full idea of the product and understood it.

It also introduced feature for organizations to use shared libraries for various components this allows teams to stay consistent through out their work and enable them to maintain structured work.

In 2021 Figma introduced Fig Jam which is a whiteboard that allow designers to brainstorm , and collaborate this increased in popularity as remote work is being normalized now a days specially after covid.

In September 2022 Figma was acquired by adobe and this for around 20 billion but to date it still operating byitself focusing on its goals and making use of the resources of adobe.

Figma

Figma is a design tool that is used to design user interfaces, prototyping and also collaboration. Its features like enabling real time collaboration, accessibility and scalability have made it very useful tool worldwide to do user interfaces.

It enables a team to work together and produce high fidelity design, prototypes and wire frames.

It is a tool that allow you to work in a project at the same time with your team since it allow real time collaboration , Figma is also web based platform which makes it easier for users because they do not have to install software.

Since it runs in the browser it can operate in any operating system this includes windows ,mac and Linux .Figma is also available as a desktop app . Figma allows real time collaboration , this feature of Figma is really important as it allows collaboration and it is also ideal for working as a team in real tm e. multiple team members can work at the same time on a given project. There is a feature of Figma where team member can leave comments and feedback this feature allows every team member to discuss and contribute to the project.

Figma also provides tools that are very important for design which allows designers to be creative and create user interface that is easy to use and understand. It uses vector-based approach which allows us to create design that is precise, scalable, change shapes and edit paths easily.

You can use shapes that are already defined for you in Figma or use the pen tool to create custom paths and shapes .

There is also option to combine various shapes using operations like union , intersection and exclude to create more complex shapes.

Another important feature of Figma is prototyping It allows you to create prototypes that show the flow and functionality of a website or may be an app. When creating prototypes Figma allows designers to create smooth transition and animations as well.

Figma allows micro-interactions , that allows the designer to animate various components of design.

Since Figma allows all stakeholders to see the prototypes and feel the whole flow of the app it is very important in creating a sense of common understanding and collaboration among the team.

Another important aspect of Figma is that allows you to be consistent and create design easily by allowing you to maintain consistent design , components , color , typography , and also style .You can store this elements in a library and reuse them across certain projects and files.

Since it allow to reuse and store elements and components in a library it will be very essential to maintain consistency across the team. Every team member can use the same font, and components like buttons and other assets.

Since it allows reusability it also gives you the ability to change the component and all instances of it will be changed as well so you do not have to change multiple instance of it again and again.

Figma also becomes very handy in version control as it saves all changes and versions in our design automatically. This allows you not to lose your previous works and also makes the designing process very flexible. There is auto saving feature in Figma that save files automatically. Another important feature of Figma is its ability to integrate with plugins to help add more features to it.

This plugin can automate the process, integrate with other tools. and also improve our workflow. Some plugins that are supported by it and functionalities provided by them are content generation interms of creating dummy text that allows you to make the deigning

process quicker. There are also Accessibility tools that help us run accessibility audits, that ensures our design meets the web content accessibility guidelines.

It also integrates with other tools like slack, Jira, GitHub to make working with a team more easier. And utilize the advantages of other platforms as well.

Another important aspect of Figma is that it enables us to give the developer clear direction they need to work on and implement. Developers can check the design, see all aspects of it and see measurements in pixels or other form, they can see color in RGB or hexadecimal or other form and this makes it easier for them to work on their desired projects and contribute to the projects.

Figma also allows us to generate CSS code which makes it easy for the developer to implement their design, and also it allows you to check all aspects that define an element and implement it properly.

Another very important aspect is Figma allows us to store all our files in cloud which allow the team to work with the updated file and this ensures all of the Figma files are up to date and every team member has access to it. This ensures that no file management issue is caused and all the files are stored in the cloud.

Advantages of Using Figma

- ### collaboration

Figma allows us to collaborate with the team and ensures that this collaboration is effective and efficient. It reduces mistakes that are caused by lack of communication and allows every team member to contribute to our project.

- ### Smooth learning curve

Figma is easy to use and the learning curve is not steep which makes it beginner friendly platform.

- **Cross-platform compatibility**

  Because it can run in the browser , Figma is accessible on all major operating systems. making it easily accessible to users.

- **Cost-effective**

  Figma has a free version with a lot of features that are important to small teams or individual . the paid version allows you to access more functionality such as team library , improved collaboration feature.

Disadvantages of Using Figma

- Dependency on internet connection

  Figma is cloud-based platform which requires you to have a stable internet connection to function properly. If there is unstable internet this can be an issue.

- Performance issue with large files

  As Figma is web based platform as you work with large files there will be issues that you will encounter .As the size of the design file increase the performance also decreases and this is an issue that can be seen as a limitation to designers as most of the time designing requires efficient performance from the platform.

- Offline Limitations

  The desktop version of Figma allows offline access.it is not as robust as platforms like adobe xd and sketch that have also offline access.

Figma’s architecture

Figma uses a client server architecture and on the client side it uses webGl to render graphics and also react for building the UI. WebGl is a java script Api that allows rendering of interactive 2D and 3D graphics. It uses our GPU (graphical processing unit)

The benefit of utilizing this webGL Is it handles complex tasks for instance rendering actions like resizing shapes, rendering large files. It also enable us to achieve cross-platform compatibility as any browser that support webGl can use Figma.

On the server side it is built on AWS and it sync changes , store files and also manages other operations .Figma’s real time collaboration is powered by operational transforms and web sockets which allow multiple users to work together.

Sample project

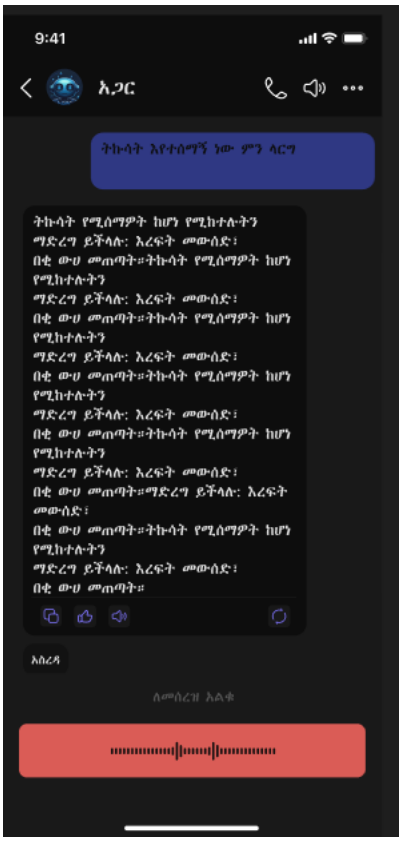
By using Figma and its extensive tools and features we have done a user interface design and prototype of an app called Agar. The design includes login page, the home page and its design when ads are displayed, The chatting page and its design and layout in certain interactions, The pages to edit profile and access previous chats are included. We also done the prototype to show how the flow of the app works.

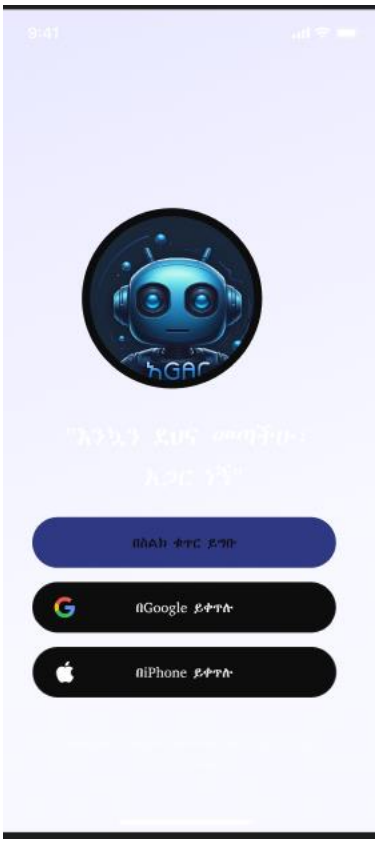
In terms of style in the project we used Abyssinica SIL font , #0D0D0D as text color mostly. #2F3883 and #0D0D0D colors are most frequently used . The colors are all in hexadecimal .

As shown in the prototype from the home page you can navigate to other pages and there are descriptive icons and Amharic text to describe actions taken when those icons are clicked.

In the prototype as well you can go the chatting page and see what type of interface you are going to get while chatting with the bot . Navigation to the profile page and editing profile user interface and also functionality to find chat history can be obtained.

Some of the screens of the Agar chat bot and the github link are given below





The link to the project is provided below

[project link]