GREEN MY CLOUD

INTRODUCTION:

The aim of this project is to create an application that measures the users smartphone usage, cloud usage and calculate carbon footprint and suggest users to purchase credits that contribute towards carbon offsetting projects that are on a global scale. The Apps primary focus is to encourage users to reduce their carbon footprint and to allow users to offset their current carbon emissions. Online research shows the increased energy usage due to several factors such as cryptocurrency, increased device usage resulting in the increased emissions generated, out of which the computing industry contributes 2.1 – 3.9 % of Greenhouse emissions. Major Stakeholders in this system would be the United Kingdom Government, the application users and the Investors in the Software Company that is developing the system. Green My Cloud could potentially partner with multiple government organizations to promote it to major corporations as a method to reduce their carbon footprint as companies are moving towards sustainable growth and development. Also, it could help boost the number of jobs and create growth in economy by these carbon offsetting projects. Investors could receive a monetary gain in the success of Green My Cloud by the increase in the company's valuation due to the success of the project. Cloverly is another stakeholder that will be interested in the app due to the transactions that will take place during purchase of credits.

SUMMARY OF PROPOSED SOLUTION:

The application must be able to calculate a User's given emissions daily and encourage users to purchase credits at the end of the month. The User must allow the application to access users app usage search history. The user is rewarded when they Level Up. Level progression occurs when a user watches the E – Learning material or after purchasing credits. Rewards vary from gift cards with values ranging from 5 – 50£. Another User type is the admin user, who is responsible for system management. These users have access to user information, are responsible to update rewards monthly, process payments and update projects that are endorsed by Green My Cloud. Admins are also responsible to update project information to show latest projects, and can view the users who purchase most carbon credits, most successful projects

Requirements:

Value Proposal: An Easy -to – Use App that promotes offsetting of carbon emissions that rewards users for purchasing credits.

Users will be asked to give permissions to track cloud and smartphone usage. Users will also receive suggestions to reduce their carbon footprint, be able to compare usage and emissions statics among other users and will be suggested to buy carbon credits to offset 25%, 50% Or 100% of their emissions. Purchase of Credits would contribute towards a user's level and contribute towards the leaderboards, where the top 5 users can suggest future projects towards which the credits would be allocated. User level progression would result in the user earning rewards such as gift cards, free

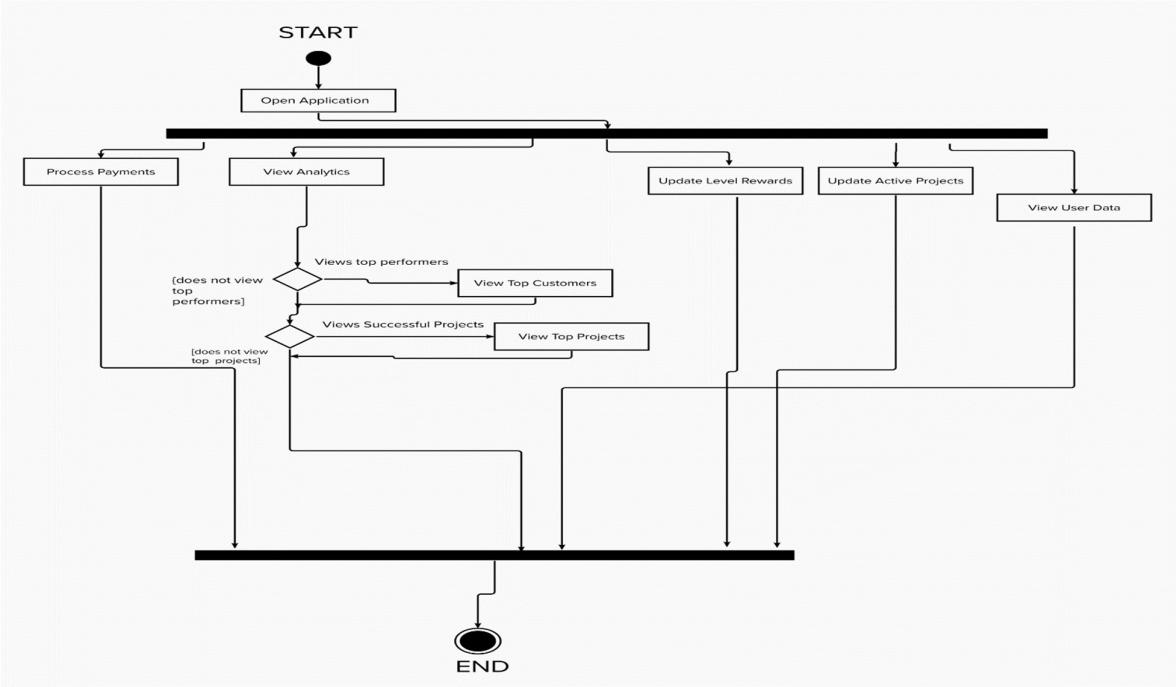
credits etc. Users will have access to E-learning materials which will educate them on the dangers of increased carbon usage and rewards users with free rewards after the completion of the program.

Non-Functional Requirements for Green My Cloud:

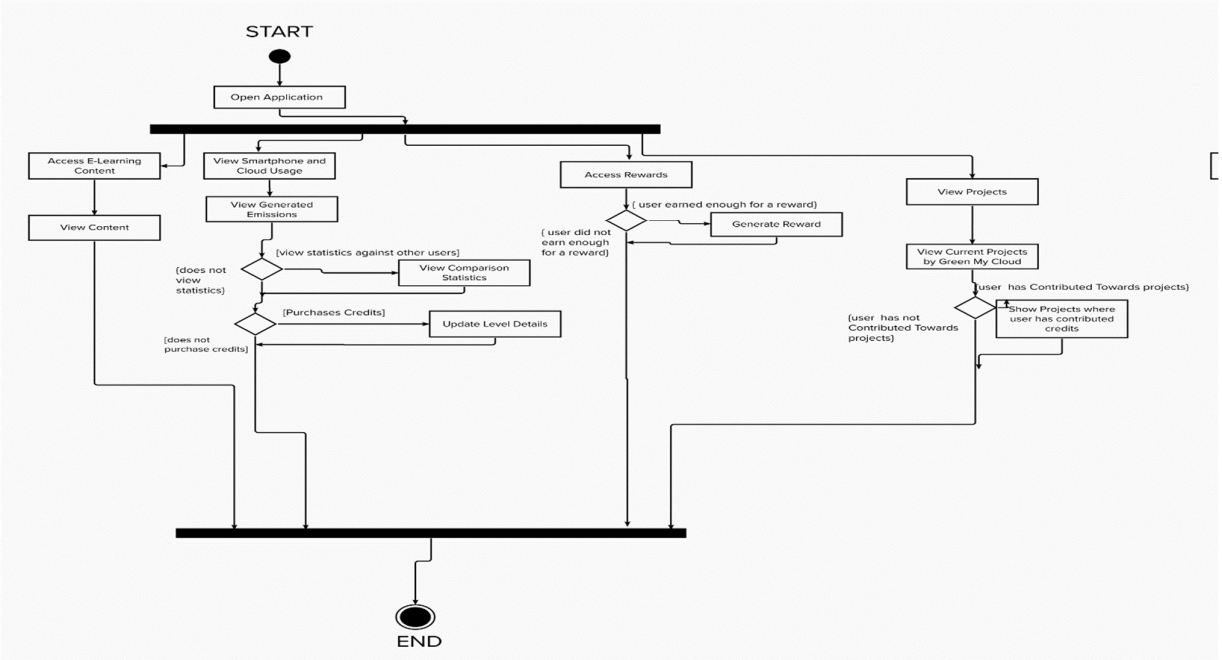
1.> Emissions calculations must be calculated at 10pm daily.
2.> The System must be able to handle 2500 concurrent users.
3.> Users must be of aware that their information is used in calculation of carbon emissions and the use of their data which will be used to compare usage for other users.
4.> User data security will adhere to the Data Protection Act.
5.> User account must be secure
6.> The app should have less than 30ms latency
7.> The app will meet data security standards.

Using the proposed solution:

As John, the app user, I want to be able to view my smartphone and cloud usage daily and gain an understanding of how my carbon emissions affect the environment and how to combat my emissions. I want to be able to purchase credits and be able to view the projects that my credits are going towards. I would also like to level up and collect rewards.



As Emily, The Admin user, I must be able to process all payments made by the customer. I must have access to user data of any given customer. I must also be able to update the rewards system whenever I see fit and update the system to show the most recent projects endorsed by GREEN My Cloud. I must also be able to access analytics which would display top contributors and successful projects to be able to get an idea of which type of projects the system will endorse in the future.



Implementing The Proposed Solution:

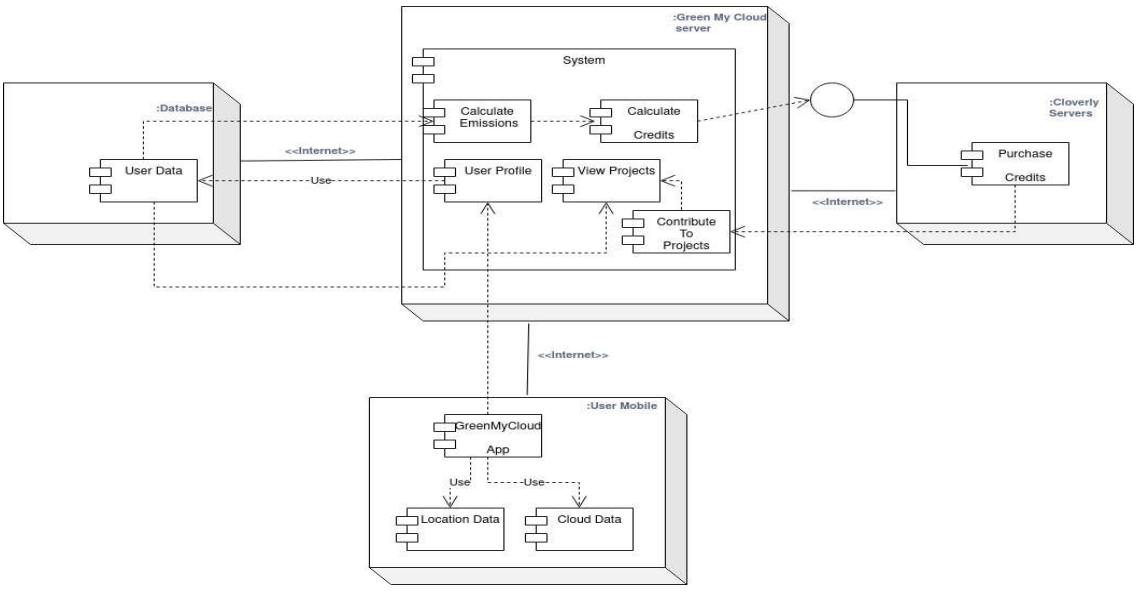
The system will require a server to be able to display the user data, calculate emissions, display projects in real time, which will be hosted on the amazon AWS platform. The server will receive user information through mobile networks. The user data will be stored on cloud Green Cloud Architecture. A Firewall will be required to ensure strong network security. A carbon friendly payment processor is required for transactions on carbon credits, which will be implemented using Cloverly API. Google API's will be used to provide users an option to log in using SSO authentication. Google's reCAPTCHA will be added to ensure a smooth user experience and security.

Addressing Non-Functional Requirements:

1.> Green Cloud Servers would have a minimum of 10 CPU cores and 256GB ram to be able to support 2500 concurrent users.
2.> The Servers will be Hosted locally to ensure that latency will be under 30ms.
3.> The APP and web server will use SSL certificates by comodo SSL.
4.> The password box will be restricted to ensure users enter adequate and different types of characters to ensure strong passwords are being entered.

Conclusion:

The System can help users combat the climate change and environmental damage caused by the increase in carbon emissions. It would also help boost the UK economy as these new projects would bring in more jobs. It would promote all UK residents to achieve a certain level of sustainability and allow corporations to cut down on their high emissions. The System will not be made compulsory but will be recommended to all users through forms of marketing.



The company will provide 100% transparency on where allocation of funds received from purchase of credits. User data, search history, cloud usage and location history will not be used for any other reasons other than to calculate carbon footprint and payment information will be strictly confidential, ensuring that it follows all the rules and regulations regarding data protection. The Application will not show any types of popup ads as this seems ethically ambiguous to make profit by limiting the usable space of the UI to increase company revenue, but the system may show any corporate sponsor brand names on the loading screen. This method ensures that major corporations also follow sustainability while ensuring revenue is generated to maintain and improve the system. The company aligns with the values that it is endorsing through the app by implementing sustainability by using green cloud architecture and using Cloverly to offset carbon emissions for each transaction.

The proposal follows sound software engineering principles as it is suitable to be scaled based on user demands due to flexible plans that Amazon and deloitte provide. The system will be developed using agile methods. User Interfaces will be consistent for any type of mobile device and offers multiple authentication types to the user. The system is flexible and allows users to offset fractions of their carbon emissions as depending on the user's financial situation they may not be able to completely offset their emissions. The system also enforces strict rules on account security.

Limitations of the proposed system:

The system will not be global and is limited to be released in UK. The system will not be able to be displayed in multiple languages and will currently be rolled out in English Only. The client had initially suggested to record IoT data, monitor smartphone and cloud usage, but due to the vast storage requirements needed to store Users Crypto and IoT data, the system will not store or track these data and will mainly focus on the user's smartphone and cloud usage. Currently Only Google SSO Authentication is supported, whereas other SSO's will be implemented after release. Since the information handled by the app will be limited and up to the user, the system cannot calculate any users carbon footprint with 100% accuracy.