ASSIGNMENT 2 : RAPID PROTOTYPING

Student name : Hrudhay Reddy Garisa,
student no : 577833

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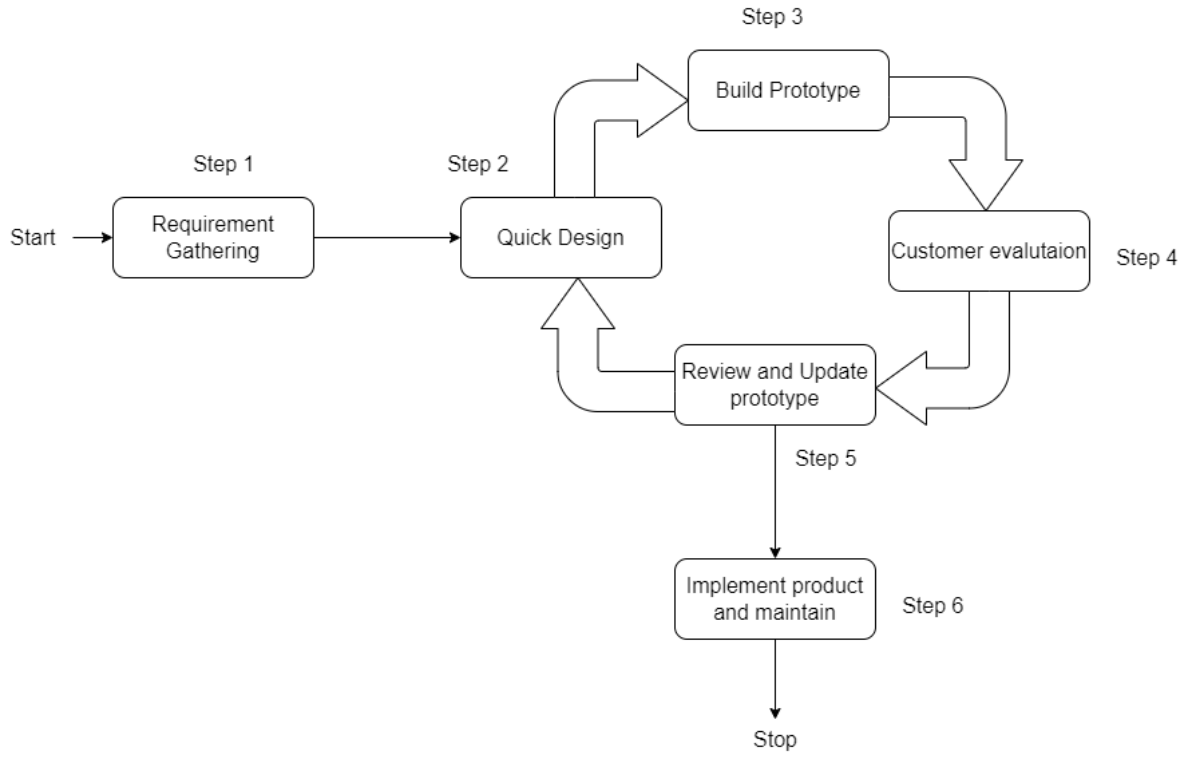
What is rapid prototyping

Rapid prototyping also known as Rapid application development (RAD) is an adaptive software development model based on prototyping and quick feedback with less emphasis on specific planning. RAD developers can quickly make multiple iterations and updates to the software without starting it from scratch. This model benefits the final-outcome to be more quality-focused and aligning with the end users' requirements (Kissflow, 2024) : (Greenstein, 2020).

When/Why would you use rapid prototyping ?

You would utilize rapid prototyping in areas such as estimating product stock , 3D printing , and software prototyping . Software prototyping can include code prototypes to build digitally to test apps , website , games , etc (Class, 2021) . Organizations might want to deploy applications or products quickly to the market , rapid prototyping is a way do that .With visual interface tools , pre-built modules and swiftly testing software functionalities , it helps create software apps quickly and easily. Businesses , chose this approach as it requires little focus on the planning phase while enabling the team to design, review, and iterate features and functionalities quickly. Another reason why organizations can choose rapid prototyping , is due to their agility, flexibility, and scalability (Kissflow, 2024).

Rapid prototyping model diagram with steps



Advantages of Rapid prototyping

- **Speed of development** : By developing products quickly , it can allow rapid responses to user feedback , which identifies their consumers needs and wants. Developing products quicker can also lead to product being deployed into the market quicker . Releasing the product quicker in the market can have a competitive edge in the market compared to their competitors (Schlick, 2024) .

- **Reduced risk** : Rapid prototyping is inexpensive as it requires very little time on creating the output. Therefore, reduced costs lead to lower overall costs in the organizations, which eventually lead to lower risks in the companies (Uddin, 2024) .

- **Encourages tweaks** : Rapid prototyping allows you to create as many versions of your products as necessary . It encourages you to make small tweaks , as the small tweaks can further improve the quality of the product and make the best product possible (Class, 2021).

- **Reduction in Wastage** : Many rapid prototyping techniques, such as additive manufacturing, are more material-efficient compared to traditional manufacturing methods, resulting in less wastage (Schlick, 2024) .

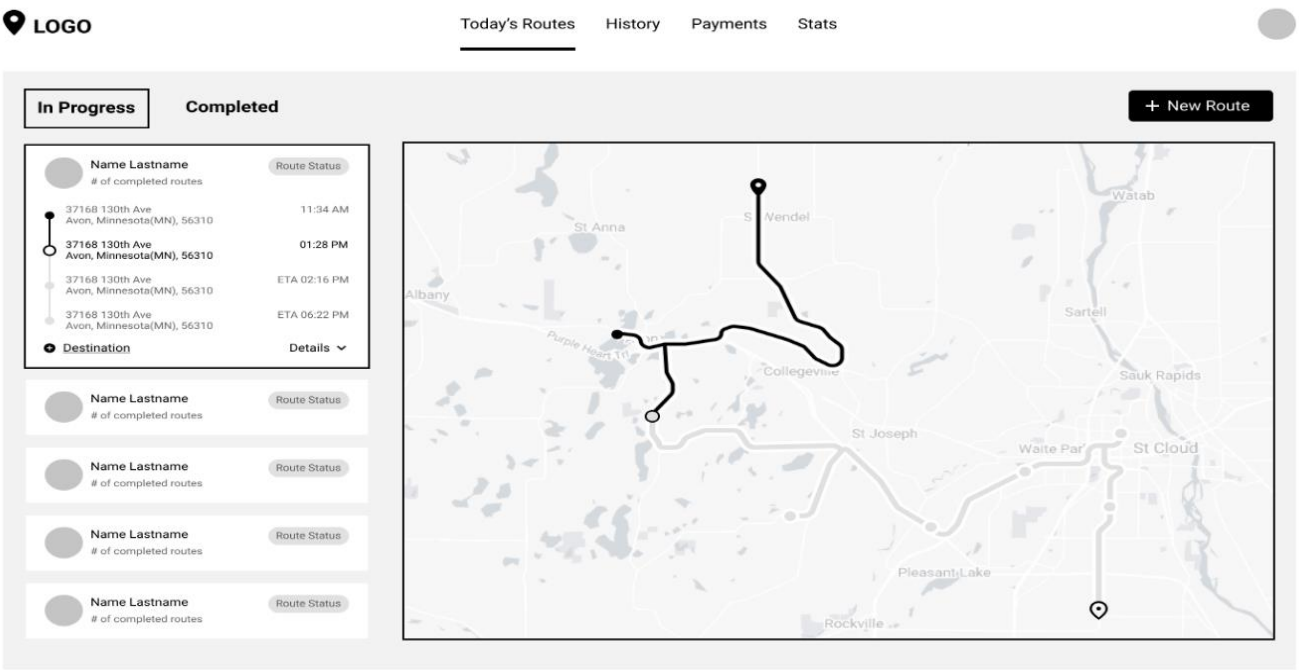
Disadvantages of Rapid prototyping

- **Not useful for complex products** : Rapid prototyping is not suitable , when testing for prototypes that are not close enough to the final product in terms of appearance and functionality. For example, it's difficult to make a functional prototype if you have a physical product with many moving parts like , for instance a new type of engine (Class, 2021).

- **It costs more upfront :** The more prototypes you test before manufacturing your product, the more expensive the development costs will be . Organizations will require more finance if some of the new rapid prototyping processes are expensive(Class, 2021).
- **User perplexity :** Some customers might come across a prototype feature that won't be used in the finished product .Therefore that could lead to dissatisfaction and disappointment to the customers , which can lead to lower sales for organizations (Uddin, 2024) .

Example of Rapid prototyping in software development projects

Transportation tracking system : A delivery company can have a prototype be created for tracking in-progress routes of all their drivers in the company. As we can see from the image below , the functionality of the tracking system would give detail information about the driver's name , locations they are travelling from , whether they have completed their delivery or in progress , etc . A system prototype also shows the design of the map (Merrill, 2023) .



(Merrill, 2023)

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