

Project Proposal: SmileScan White

Background

A confident smile increases a person's self-esteem and confidence, making the dental aesthetics sector a growing industry. Moreover, white teeth are also seen as a sign of good oral health. To improve oral health and to respond to the sharp rise in demand for aesthetics and a confident smile, we are creating a device called "SmileScan White".

Using teeth whitening kits for a longer period could potentially lead to a few side-effects. The most common side effect being the increased Tooth Sensitivity, however it could also cause Gum irritation, Enamel erosion and Tooth discoloration. A controlled use of the kits could easily avoid these side-effects. Although the shade scanners are available, people are not using them either because of the expensive prices or due to the inconvenience of using two devices.

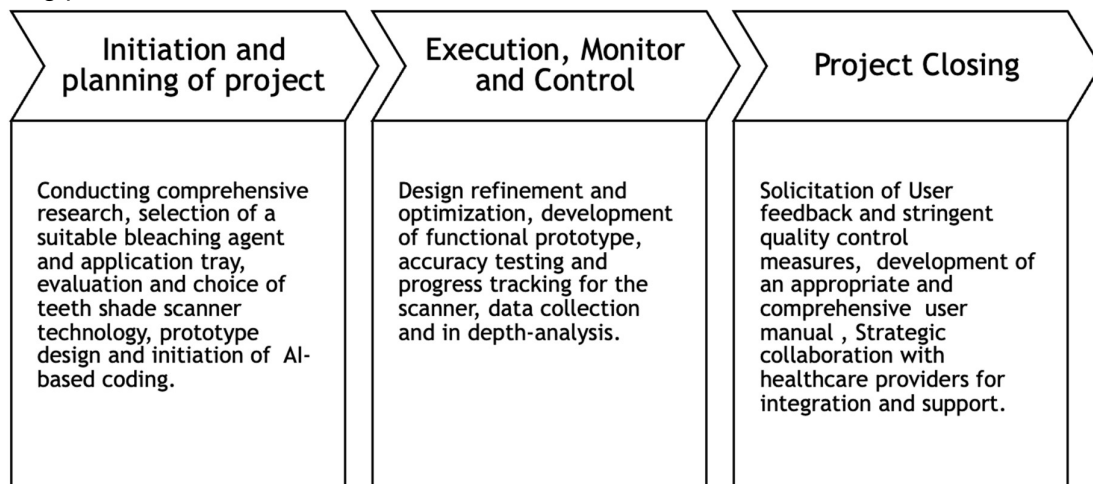
Thus, combining a shade scanner with the at-home whitening kit would strive to give efficient whitening outcomes while also assuring safety and user happiness while keeping in mind the significance of maintaining quality and safety standards and giving a regulated and educated approach.

Objectives

1. **Whitening Agent and Sensor Research:** Conduct thorough research to identify and select optimal whitening agents and sensors for the SmileScan White teeth whitening device. Evaluate their effectiveness, safety, and compatibility.
2. **SmileScan White Development:** Design and develop a functional prototype of the SmileScan White device by seamlessly integrating the selected teeth whitening kit with a shade scanner. Ensure the system's compatibility and ease of use.
3. **Smart Features Integration:** Incorporate a microcontroller into the SmileScan White device to enable intelligent features such as real-time whitening progress tracking and cavity detection alerts. Implement user-friendly interfaces for these features.

Scope

The ultimate goal of the "SmileScan White" project is to manufacture functional at-home whitening kits with integrated tooth shade scanner which will effectively whiten users' teeth, also providing features like tracking progress, accurate shade monitoring, cavity alerts. The project will include following phases:



Project Proposal: SmileScan White

Timeframe

	Description of Work	Start and End Dates
Phase One	<u>Initiation and planning of project:</u> <ul style="list-style-type: none">• Project Planning and gathering the required information.• Designing the combined kit and begin coding for the AI aspect of the project.	September 14 th to October 1 st
Phase Two	<u>Execution, Monitor and, Control:</u> <ul style="list-style-type: none">• Development of the functional kits	October 1 st to November 20 th
Phase Three	<u>Project Closing:</u> <ul style="list-style-type: none">• Testing the kits	November 20 th to December 1 st

Project Budget

	Description of Work	Anticipated Costs
Phase One	<u>Initiation and planning of the project</u>	\$ 7,200*
Phase Two	<u>Execution, Monitor and, Control</u>	\$ 98000**
Phase Three	<u>Closing</u>	\$ 33600**
	Total	\$138800

* Calculations based on hourly employment rate \$80 per hour.

** We are estimating the cost for 100 devices and calculations are done based on google suggested individual component's rate.

Key Stakeholders

Client	Colgate Company
Sponsor	Luddy School, Indiana University at Indianapolis
Project manager	Jessi Gold Kalapala

Monitoring and Evaluation

For monitoring and evaluation we have identified some key '**indicators**', which are listed below:

1. Whitening Agent and Sensor Research :
 - a. Number of potential ingredients and sensors researched
 - b. Quality ratings of each ingredient and sensor
 - c. Cost of each ingredient and sensor
 - d. Time spent on research

Project Proposal: SmileScan White

2. SmileScan White Development:
 - a. Number of devices built
 - b. Time spent on building each device
 - c. Cost of building each device

3. Smart Features and Testing:
 - a. Number of AI features incorporated in the microcontroller
 - b. Number of subjects successfully completing the trial tests
 - c. Feedback from testers on each feature and device

Approval Signatures

Colgate, Project Client

Luddy School at IUI, Project
Sponsor

Jessi Gold Kalapala,
Project Manager