NEROLAC

Nerolac VR Visualizer

A Case Study by Enso Immersive

NEROLAC

The Awesome Team

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Creative Technologist and XR Visual Media Specialist

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Business Accelerator and Marketing Maverick

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UX Design Lead and Team Manager

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Unity Developer

Pavan Kumar

Web Technologies

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The Gap

Nerolac's dealers previously carried a shade card to help customers narrow down on their choice of colors. It is a common observation that trying to imagine how your house looks just from a shade card is not enough. Nerolac wanted to go a step forward and replace the word "imagine" with "Visualize".

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The Proposal

A Virtual Reality Android application wherein a customer can explore different colour options in predefined home configurations for various parts of a house like the living room, dining room, bedroom etc. This will help the customer visualize the colour range as a hyper realistic alternative to Nerolacs existing physical colour samples.

The application will significantly aid the dealers direct communication with their customers and provide their on-ground sales force with a formidable tool to boost the customers decision making process and shorten the gestation period thereof.

The application can also be converted to Web/ browser based experience which customers can directly engage with on the Nerolac website.

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The Application – Salient Features

The customer will be able to navigate to predefined spawn points in the 360 degree photo-realistic environment using the daydream controller and explore the house and different colour options from various different angles

This will help the customer evaluate how the colour ranges look in bright light, sunlight, under shadows or in dark environments.

Tooltips within the environment will appear in 3D to inform the customer about the selected colour range.

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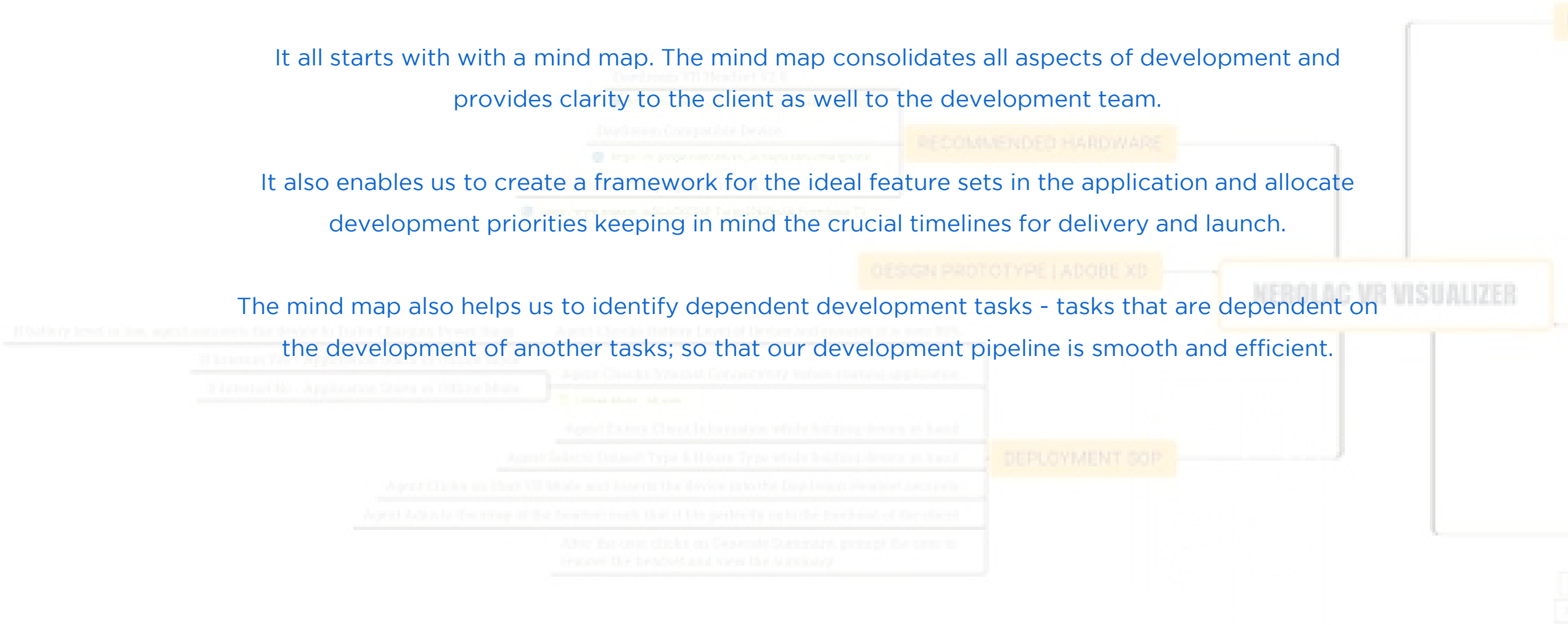
The Application – Workflow

It all starts with with a mind map. The mind map consolidates all aspects of development and provides clarity to the client as well to the development team.

It also enables us to create a framework for the ideal feature sets in the application and allocate development priorities keeping in mind the crucial timelines for delivery and launch.

The mind map also helps us to identify dependent development tasks - tasks that are dependent on the development of another tasks; so that our development pipeline is smooth and efficient.



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The Application – Quality of Experience

We will be using 360 degree 4K resolution Photographs of a real house.

The quality of the experience will be photo-realistic.

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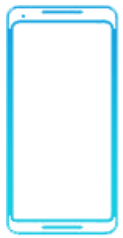
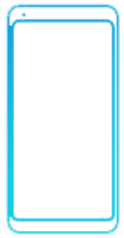
Hardware

List of Daydream devices



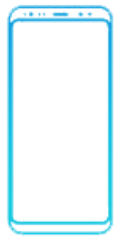
Pixel 2

Google



Pixel

Google

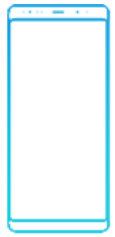


Galaxy S9 & S9+

Samsung

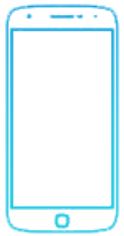
Galaxy S8 & S8+

Samsung



Galaxy Note8

Samsung

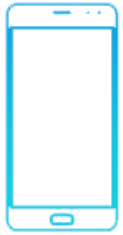


Moto Z & Z^2

Motorola

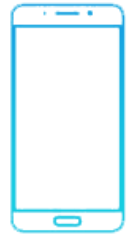
LG V30

LG



ZenFone AR

ASUS



Mate 9 Pro

Huawei

Axon 7

ZTE

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Why Google Daydream VR?

- The Daydream Platform is intimately tied with Android Oreo+ Operating Systems with a fast growing list of compatible smartphones.
- The Daydream Headset comes with a 3DOF (Degree of Freedom) controller enabling the user to interact with their VR environment in a more natural way.
- Googles Daydream offers the first consumer grade and affordable VR experience that eliminates the inefficiencies of Cardboard VR and takes a significant step towards professional virtual reality.

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Future Technological Landscape

Daydream Standalone Device – Automatic Application Compatibility and Match

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Enso’s Image Masking with Shadow Preservation

Normal Masking

Enso Image Masking

Plenty of tools have been developed to enable swapping of colours however they have all failed at capturing soft shadows. Most masking techniques apply a solid colour to the wall. We wanted to be as realistic in our approach as possible and to that end, we created a proprietary masking technique that preserves soft shadows. Through this technique, a customer is able to visualize the colour as it would realistically apply to the wall.

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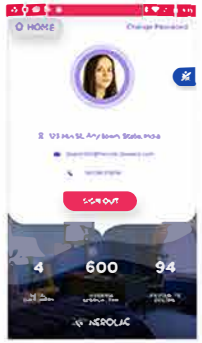
Customer Log

Vendor Profile

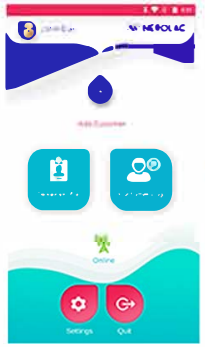


Bug Report

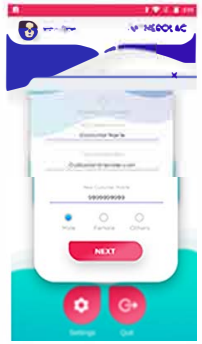
Customer Summary

Login

HomeScreen



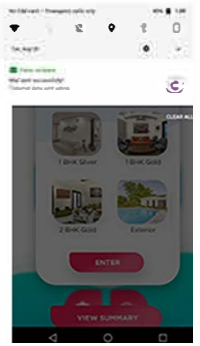
Add Customer



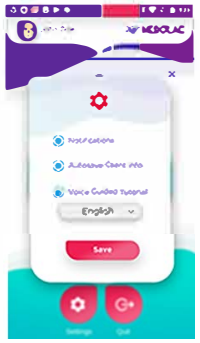
Daydream mode

Nerolac VR Experience

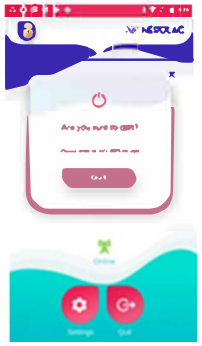
Notifications



Settings



Quit



User Interface

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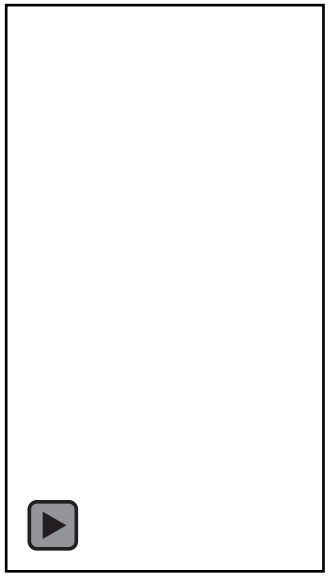
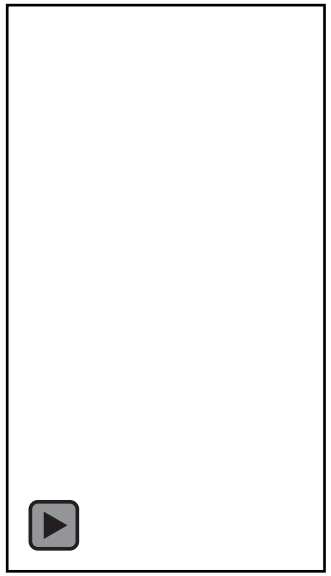
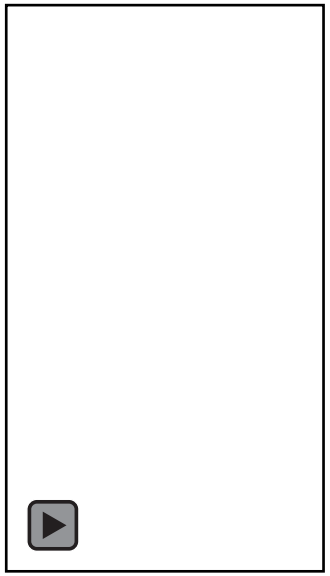
Animations & Transitions



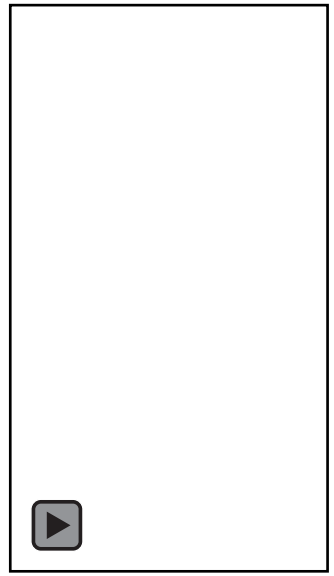
Horizontal Parallax



Vertical Parallax



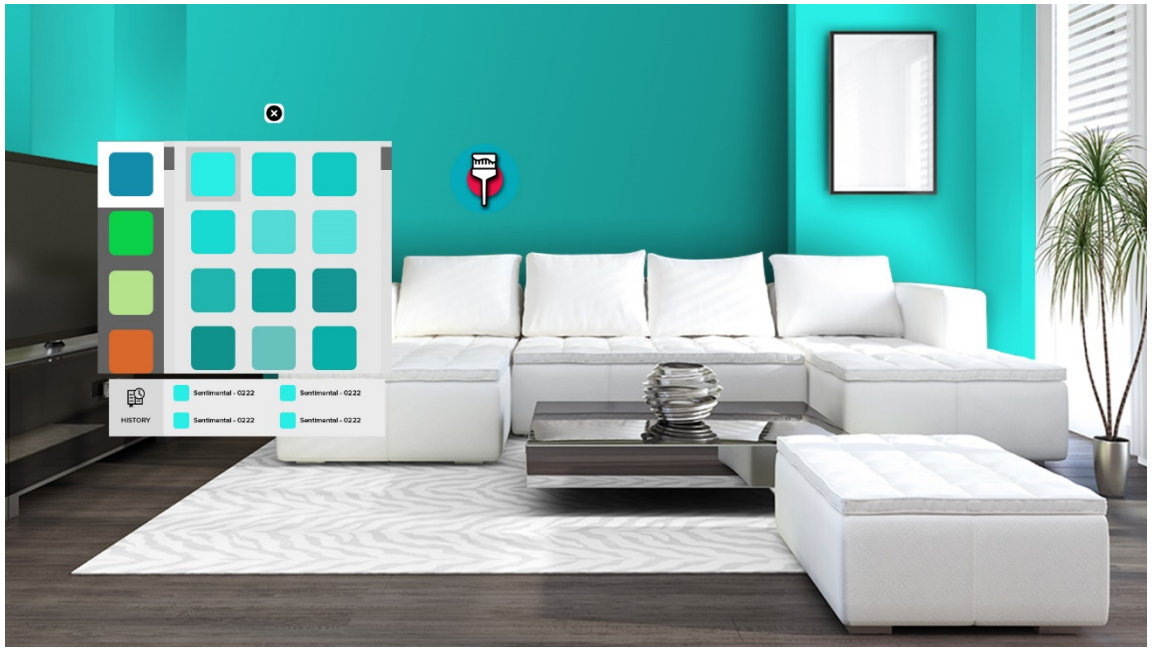
Pop-ups



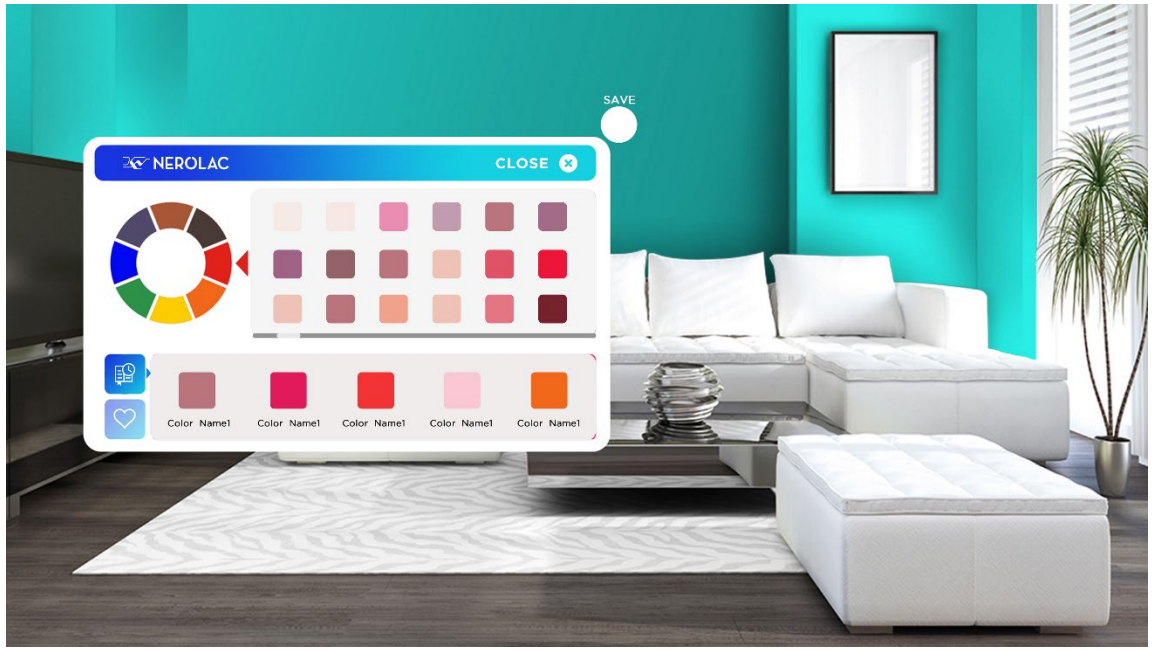
Micro Interactions

User Experience Interactions

Being the first application of its kind, we were tasked with developing the first ever interactable color selection palette in VR to be used with a 3DOF (Degrees of Freedom) Daydream Controller.



First Iteration



Second Iteration

Bringing all the elements together and routing the user in a defined process. This iteration also aligned the UI to the Voice Guided Tutorial on using the panel.

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User Experience Interactions

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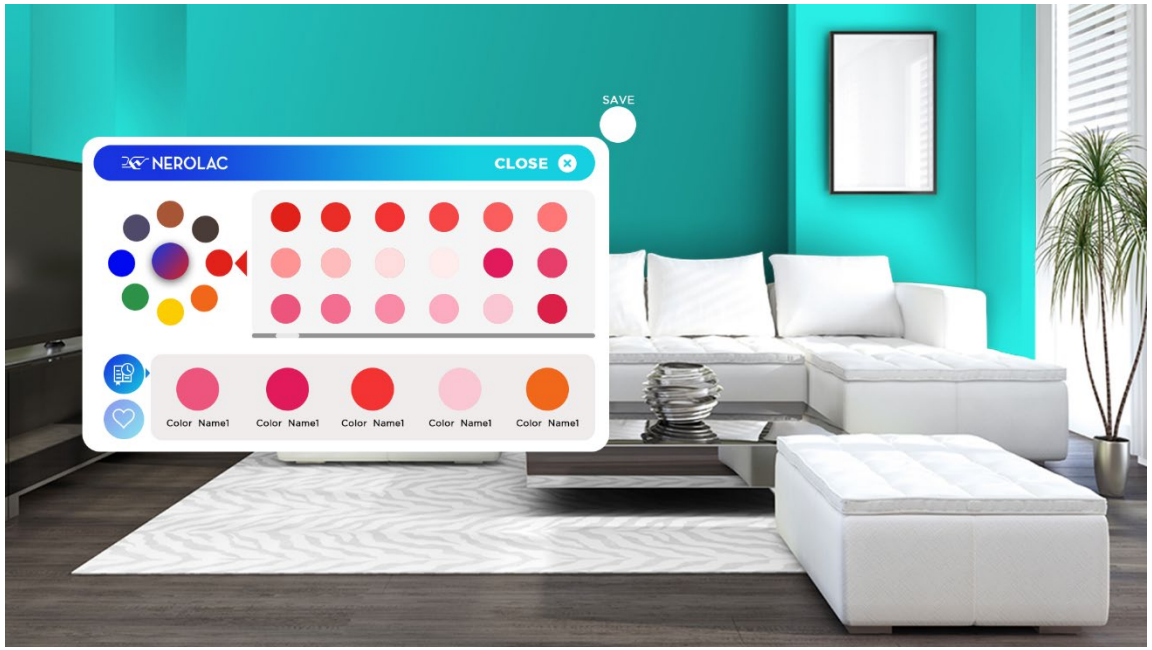
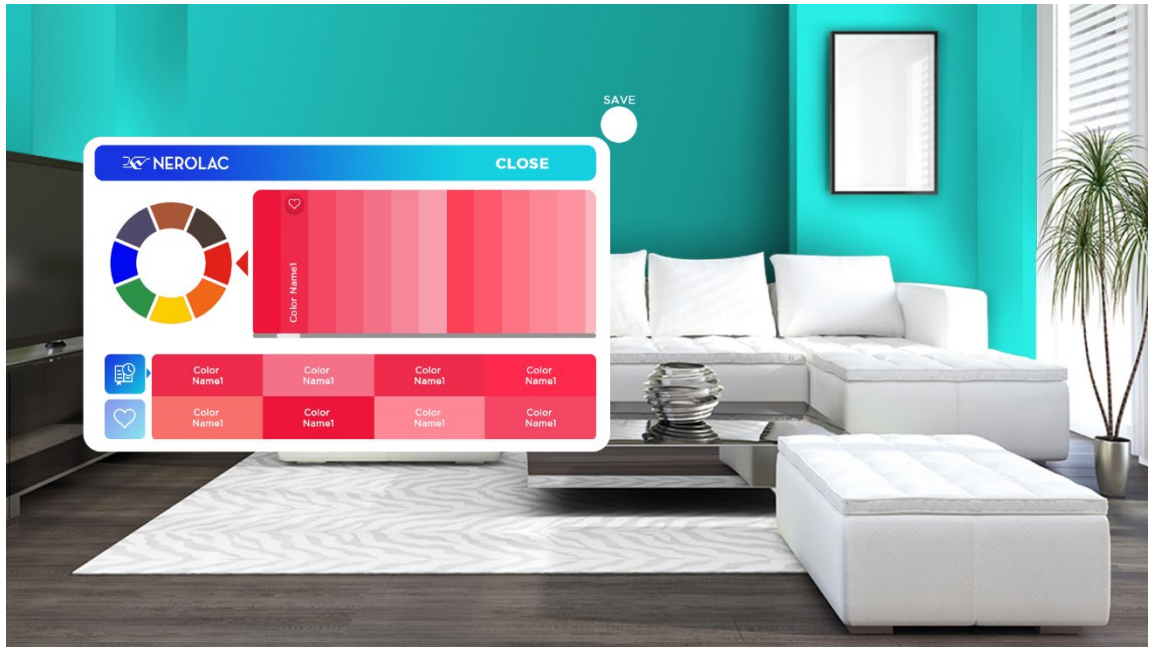


Third Iteration

A design revamp intended to be softer on the eyes with more negative space. However, this iteration failed to gel all the elements together and did not use the panel space to its optimum capacity.



Fourth Iteration

Identifying the innate ability of the human mind to compare colours when they are presented in adjoining edges. This iteration also addressed the previous challenge of space utilization on the panel.

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User Experience Interactions

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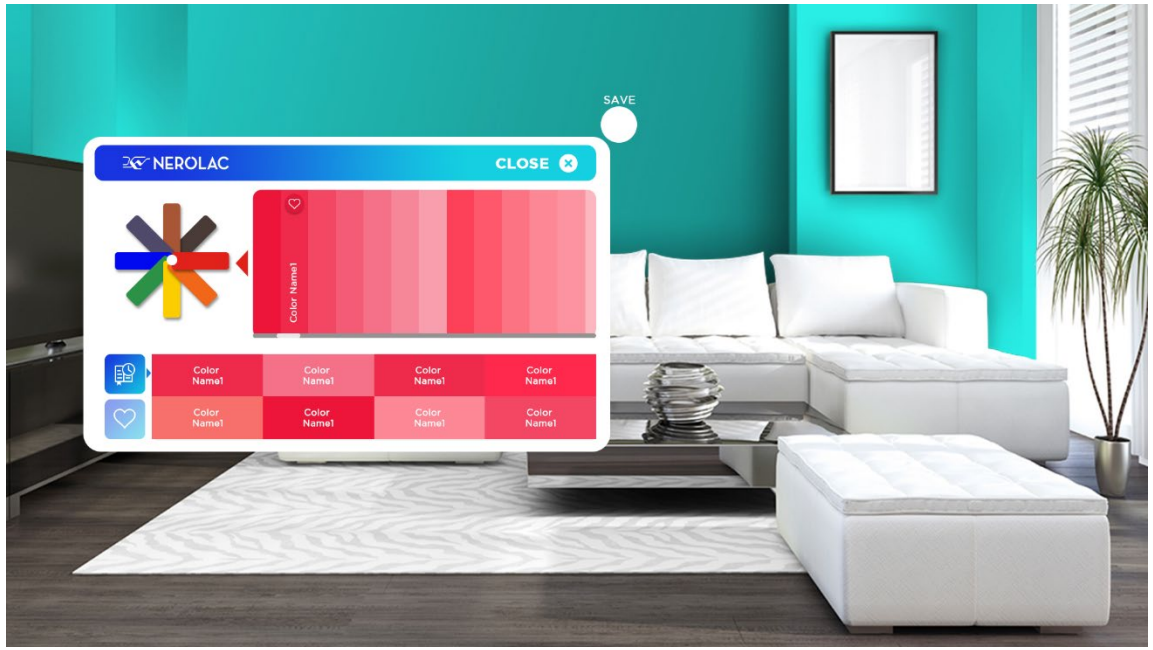

Fifth Iteration
An animated colour wheel that opens and closes like a shade card for a cohesive customer experience.

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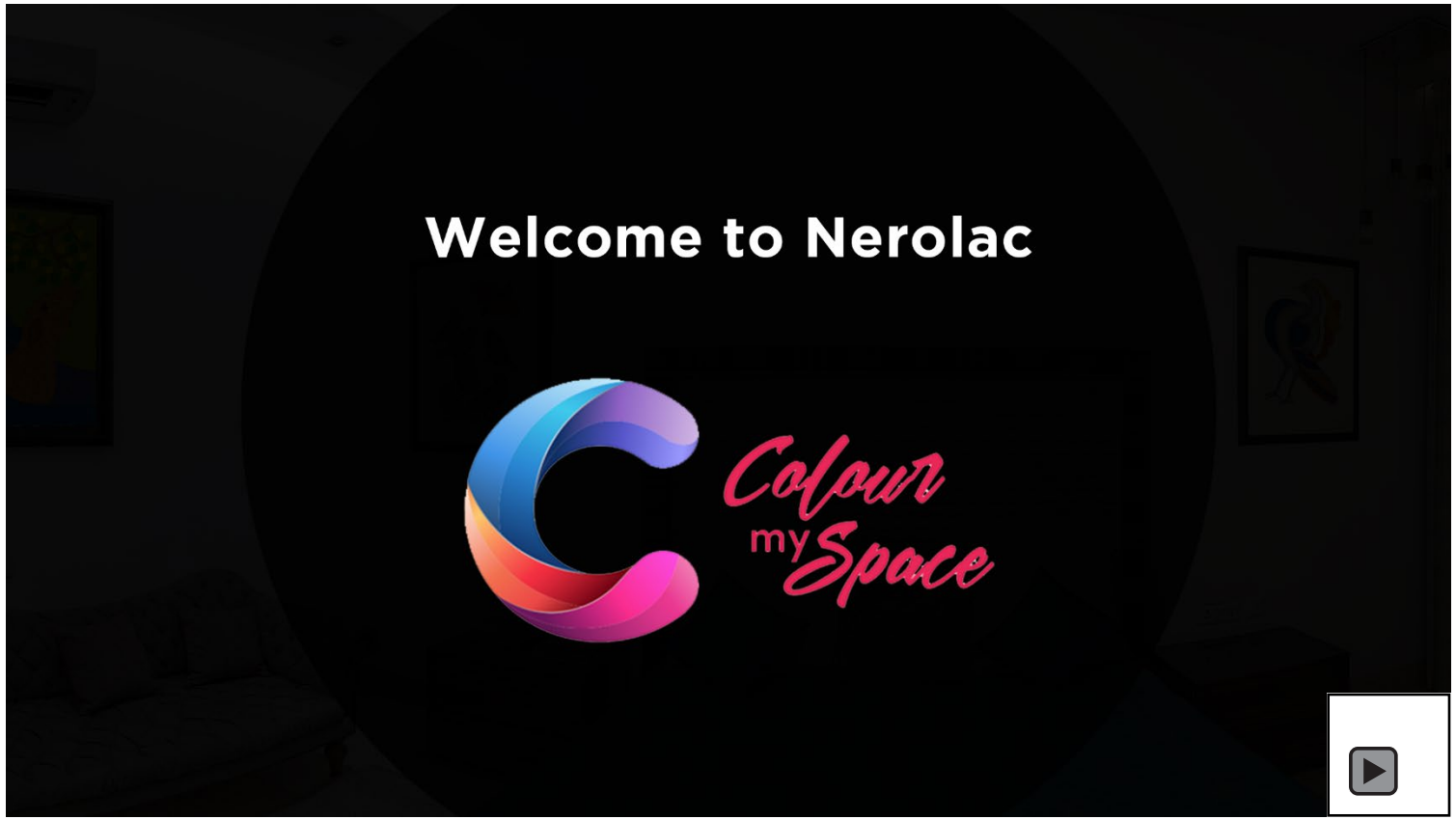
Voice Guided Tutorials

In English, Hindi, Bengali and Malayalam



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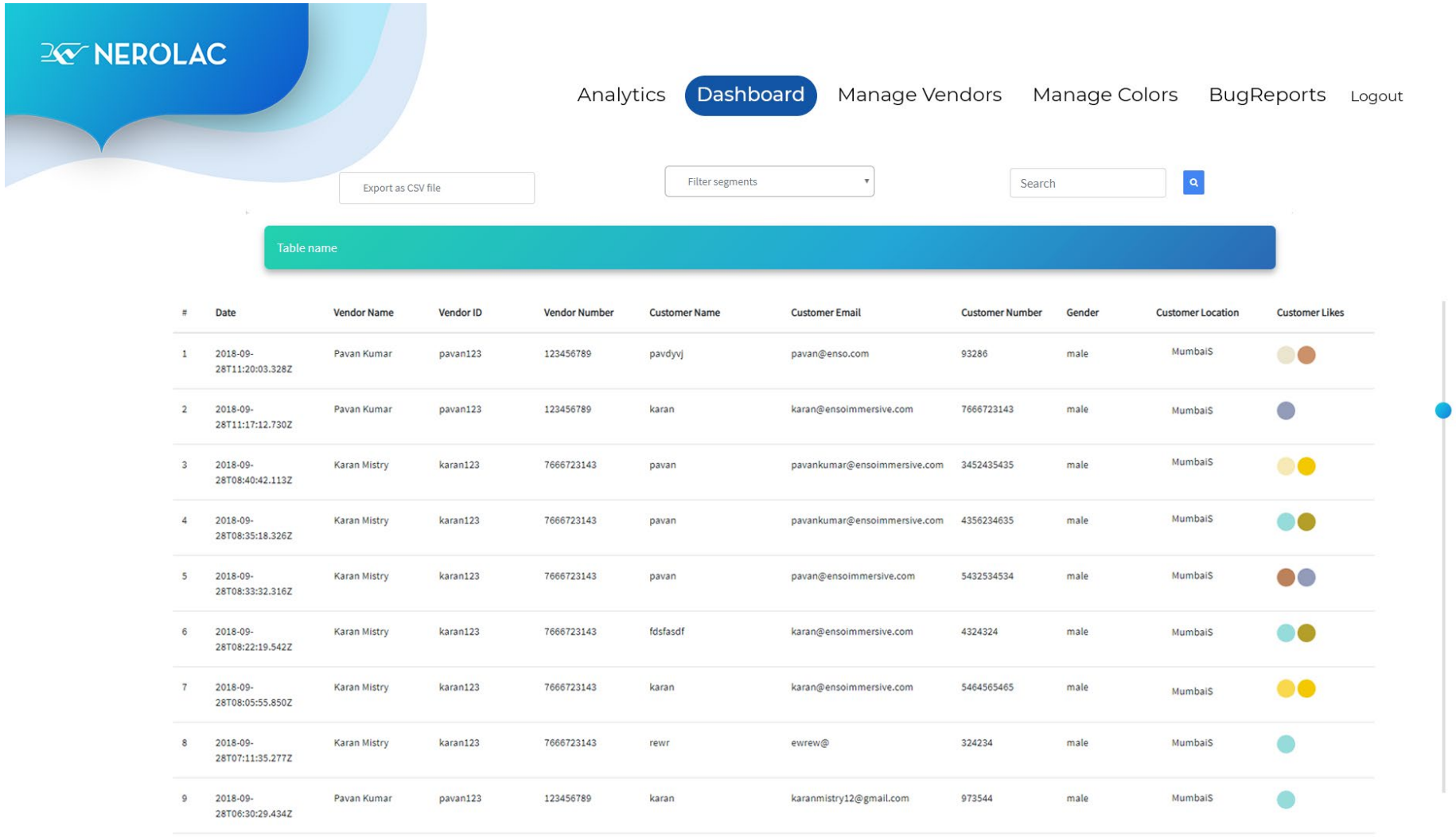
360 Photography

We will be using 360 degree 4K resolution Photographs of a real house.

The quality of the experience will be photo-realistic.

Working with Data

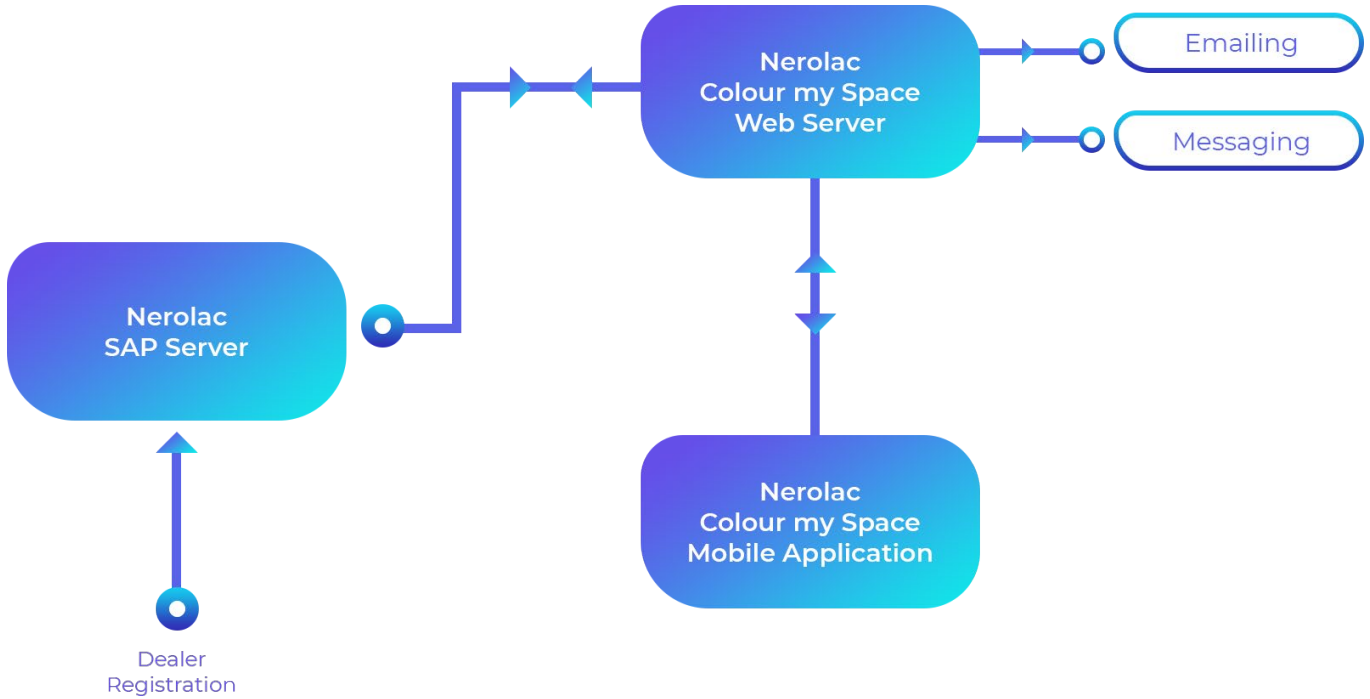
The web dashboard is accessible to Nerolac's Management. Here, they can see a live flow of activities being performed by dealers across the country.



#	Date	Vendor Name	Vendor ID	Vendor Number	Customer Name	Customer Email	Customer Number	Gender	Customer Location	Customer Likes
1	2018-09-28T11:20:03.328Z	Pavan Kumar	pavan123	123456789	pavdyvj	pavan@enso.com	93286	male	MumbaiS	
2	2018-09-28T11:17:12.730Z	Pavan Kumar	pavan123	123456789	karan	karan@ensoimmersive.com	7666723143	male	MumbaiS	
3	2018-09-28T08:40:42.113Z	Karan Mistry	karan123	7666723143	pavan	pavankumar@ensoimmersive.com	3452435435	male	MumbaiS	
4	2018-09-28T08:35:18.326Z	Karan Mistry	karan123	7666723143	pavan	pavankumar@ensoimmersive.com	4356234635	male	MumbaiS	
5	2018-09-28T08:33:32.316Z	Karan Mistry	karan123	7666723143	pavan	pavan@ensoimmersive.com	5432534534	male	MumbaiS	
6	2018-09-28T08:22:19.542Z	Karan Mistry	karan123	7666723143	fdsfasdf	karan@ensoimmersive.com	4324324	male	MumbaiS	
7	2018-09-28T08:05:55.850Z	Karan Mistry	karan123	7666723143	karan	karan@ensoimmersive.com	5464565465	male	MumbaiS	
8	2018-09-28T07:11:35.277Z	Karan Mistry	karan123	7666723143	rewr	ewrew@	324234	male	MumbaiS	
9	2018-09-28T06:30:29.434Z	Pavan Kumar	pavan123	123456789	karan	karanmistry12@gmail.com	973544	male	MumbaiS	

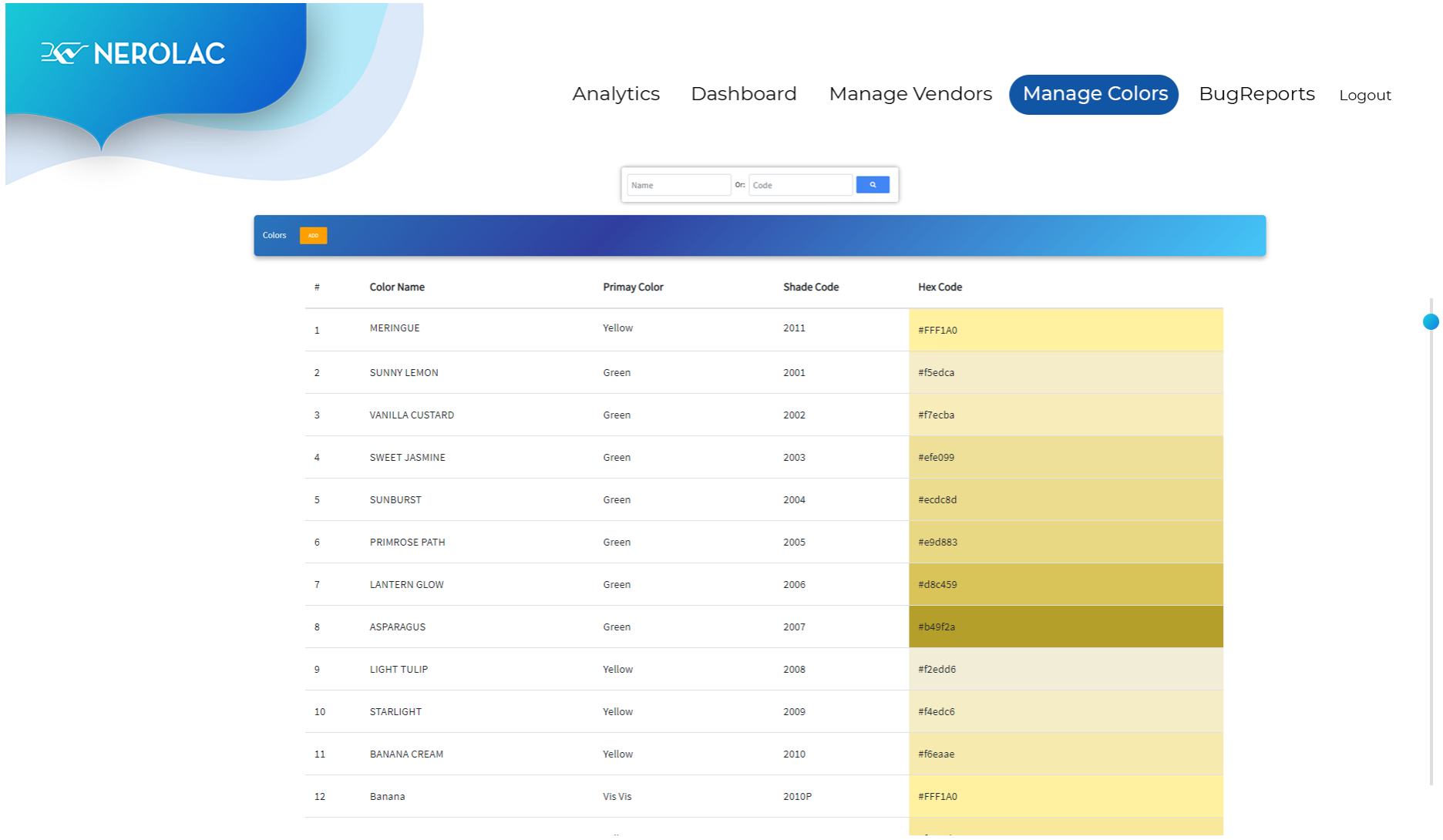
Dealer Registration System

Our web portal pulls live data from Nerolac's internal dealer database. If any new dealer is added on Nerolac's database, it automatically reflects on the web portal. Since this is a dealer only application, a registered dealer simply needs to input their unique dealer code and they will receive an email and an sms with the password for a one time login.



Colour Database management System

Our colour database can be modified at any time by a Nerolac authorised personnel



#	Color Name	Primay Color	Shade Code	Hex Code
1	MERINGUE	Yellow	2011	#FFF1A0
2	SUNNY LEMON	Green	2001	#f5edca
3	VANILLA CUSTARD	Green	2002	#f7ecba
4	SWEET JASMINE	Green	2003	#efe099
5	SUNBURST	Green	2004	#ecdc8d
6	PRIMROSE PATH	Green	2005	#e9d883
7	LANTERN GLOW	Green	2006	#d8c459
8	ASPARAGUS	Green	2007	#b49f2a
9	LIGHT TULIP	Yellow	2008	#f2edd6
10	STARLIGHT	Yellow	2009	#f4edc6
11	BANANA CREAM	Yellow	2010	#f6eaae
12	Banana	Vis Vis	2010P	#FFF1A0

Analytics & Reporting

The analytics page offers KPI driven insights into all dealer and customer interactions. It is intended to be used as a management decision making tool to identify promising colours, top performing dealers, customer demographics and many other interesting insights.

The system also generates a monthly report with key KPI metrics that is emailed to all stakeholders in the Nerolac Management.

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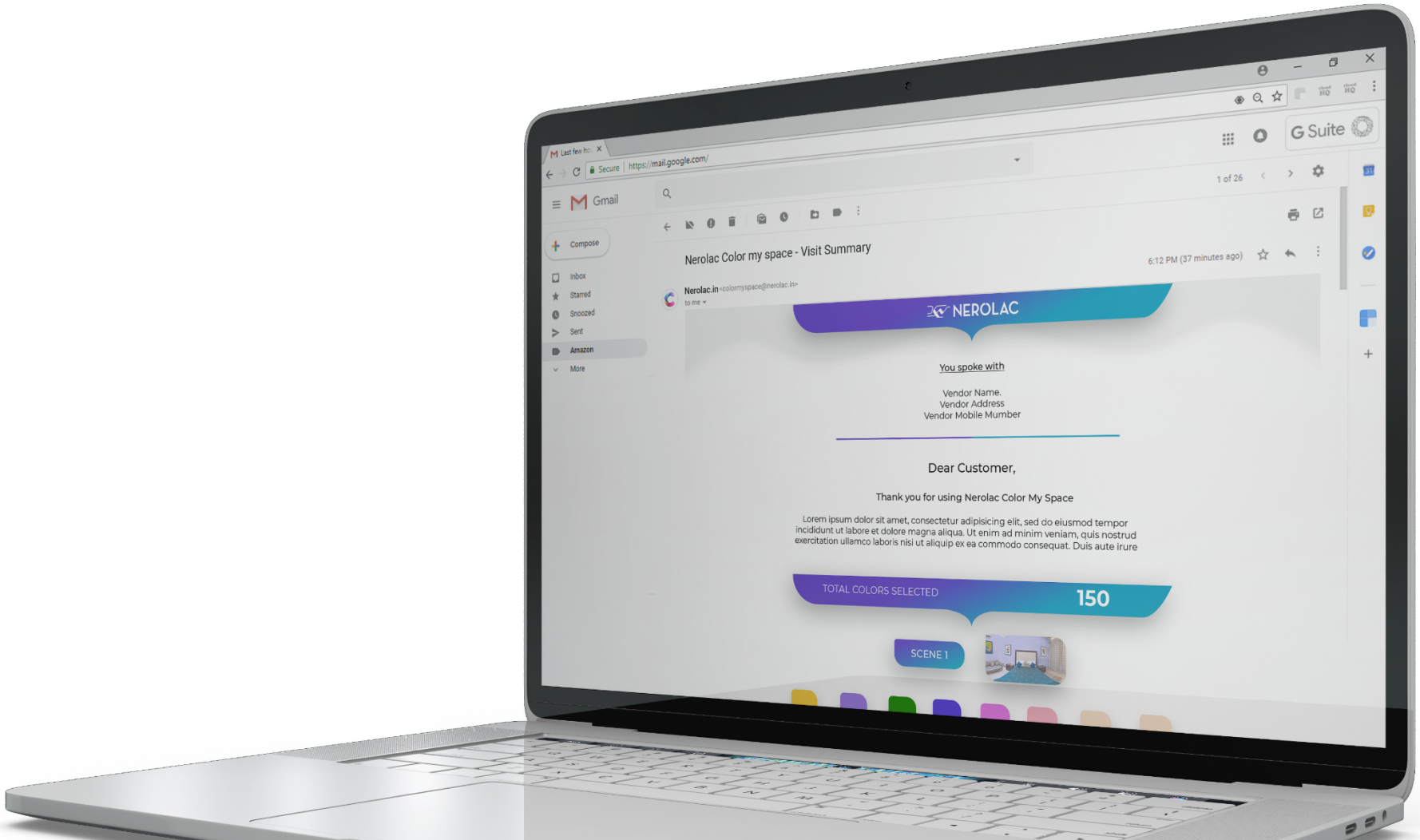
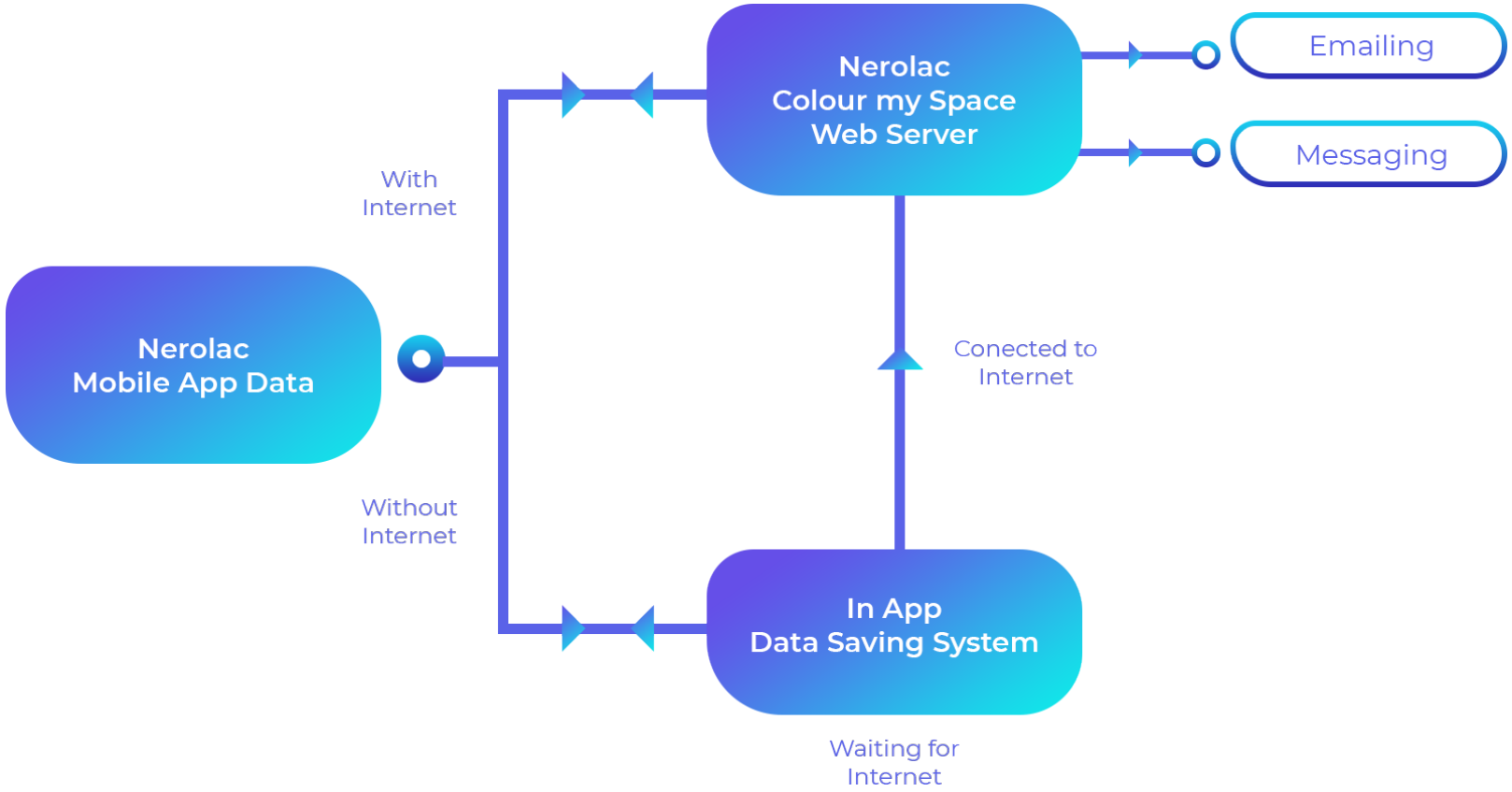
CRM

After ending a session with a prospective customer, the application is designed to generate a summary report encapsulating all activities performed by the customer. This is cross checked by the on ground agent and an email is sent to the customer closing the sales loop.



Containing Data Loss - Offline Mode

Being used as a field application, we preempted the use of the application without internet. The application is designed to hold all data in offline mode and sync it with the server on detection of a stable internet connection, thus making it robust and practical to use.



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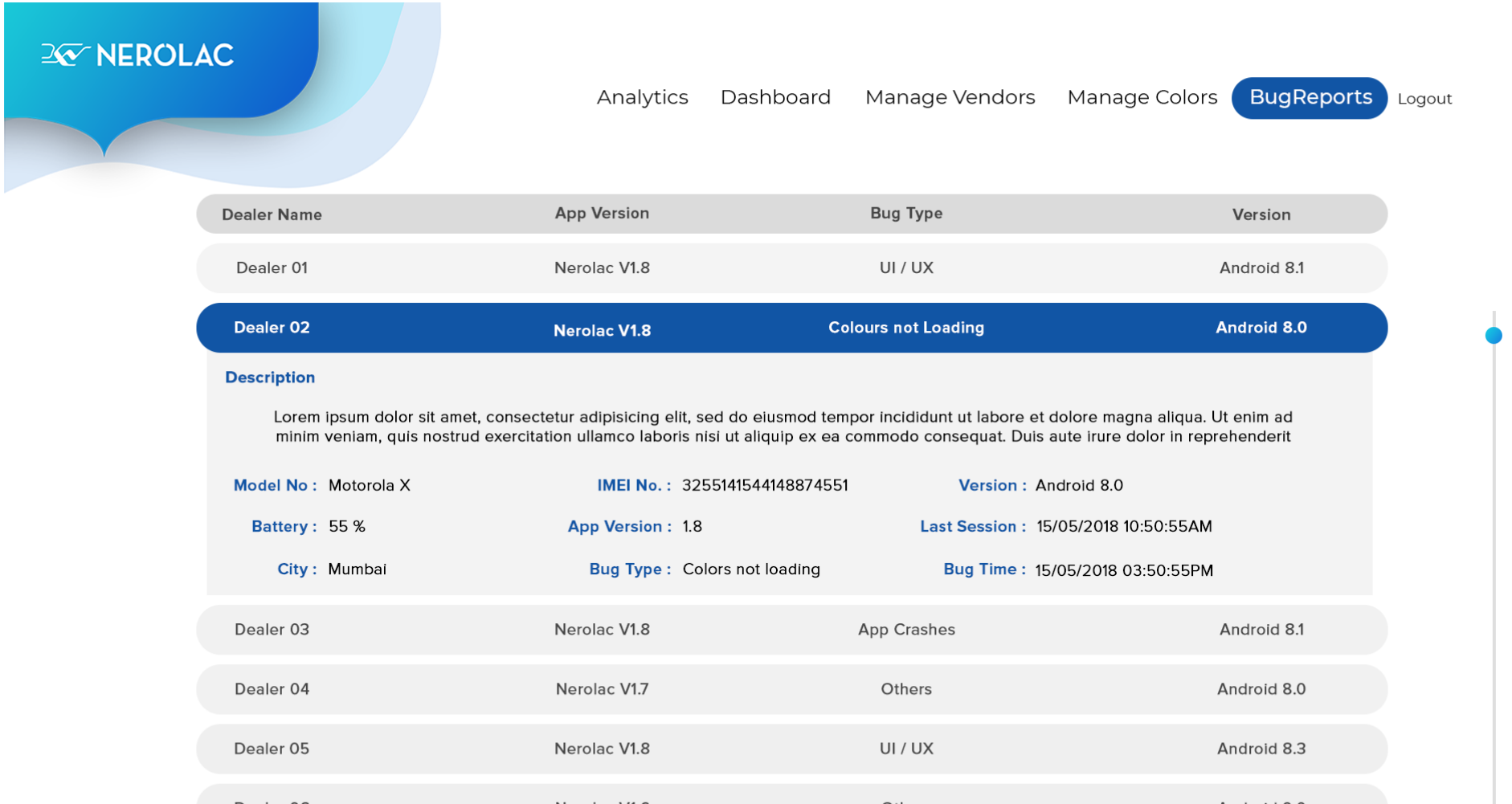
Bug Reporting & Tracking System

Although all our systems are designed to be robust in handling any kind of turbulence, we are cognisant of the ever evolving technological landscape and acknowledge the possibilities of anomalies. The dealer can also post a manual request for problem resolution using the Bug Report Button on the dealer profile page.



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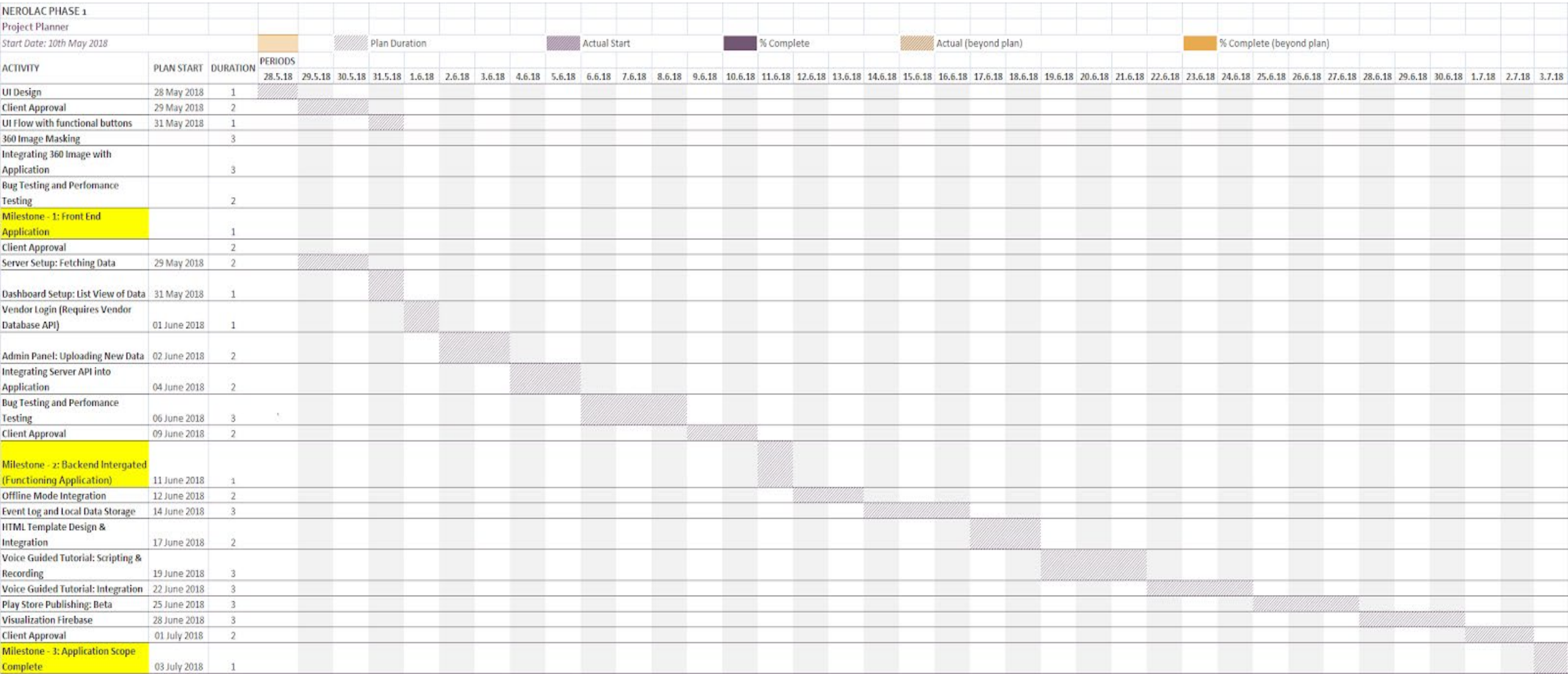
Enso's Development Pipeline



NEROLAC PHASE 1
Project Planner
Start Date: 10th May 2018
Plan Duration | Actual Start | % Complete | Actual (beyond plan) | % Complete (beyond plan)

ACTIVITY	PLAN START	DURATION
UI Design	28 May 2018	1
Client Approval	29 May 2018	2
UI Flow with functional buttons	31 May 2018	1
360 Image Masking		3
Integrating 360 Image with Application		3
Bug Testing and Perfomance Testing		2
Milestone - 1: Front End Application		1
Client Approval		2
Server Setup: Fetching Data	29 May 2018	2
Dashboard Setup: List View of Data	31 May 2018	1
Vendor Login (Requires Vendor Database API)	01 June 2018	1
Admin Panel: Uploading New Data	02 June 2018	2
Integrating Server API into Application	04 June 2018	2
Bug Testing and Perfomance Testing	06 June 2018	3
Client Approval	09 June 2018	2
Milestone - 2: Backend Intergated (Functioning Application)	11 June 2018	1
Offline Mode Integration	12 June 2018	2
Event Log and Local Data Storage	14 June 2018	3
HTML Template Design & Integration	17 June 2018	2
Voice Guided Tutorial: Scripting & Recording	19 June 2018	3
Voice Guided Tutorial: Integration	22 June 2018	3
Play Store Publishing: Beta	25 June 2018	3
Visualization Firebase	28 June 2018	3
Client Approval	01 July 2018	2
Milestone - 3: Application Scope Complete	03 July 2018	1

PERIODS
28.5.18 29.5.18 30.5.18 31.5.18 1.6.18 2.6.18 3.6.18 4.6.18 5.6.18 6.6.18 7.6.18 8.6.18 9.6.18 10.6.18 11.6.18 12.6.18 13.6.18 14.6.18 15.6.18 16.6.18 17.6.18 18.6.18 19.6.18 20.6.18 21.6.18 22.6.18 23.6.18 24.6.18 25.6.18 26.6.18 27.6.18 28.6.18 29.6.18 30.6.18 1.7.18 2.7.18 3.7.18

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Working with the Dealers

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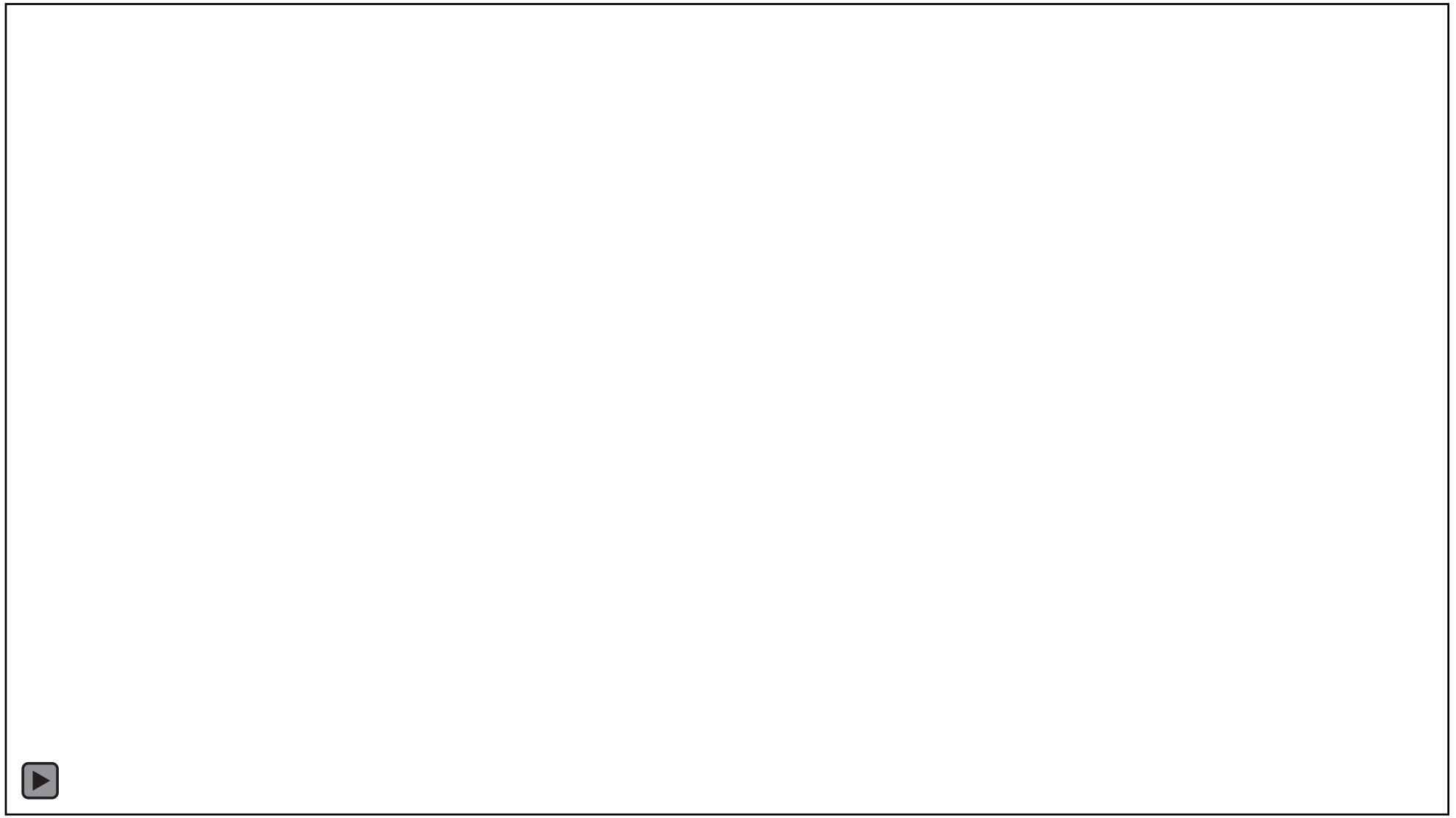
Working with the Dealers



CONTACT US

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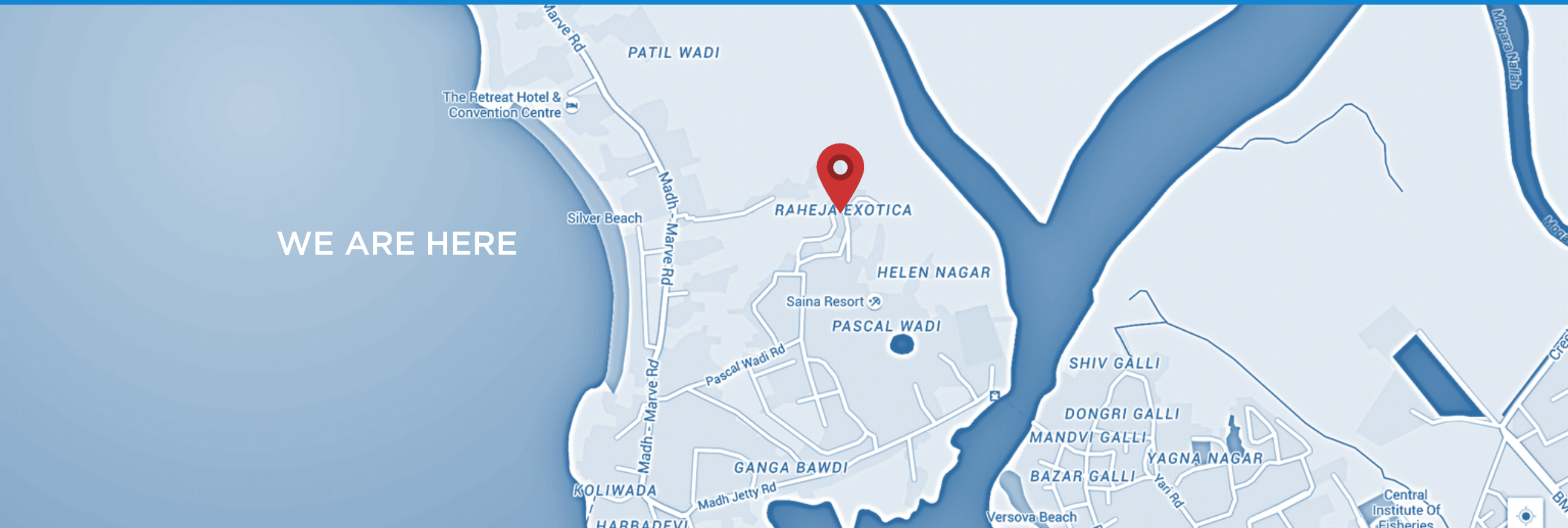
WE ARE HERE