

# **RIPHAH INTERNATIONAL UNIVERSITY**



## **Faculty of Computing FINAL YEAR PROJECT PROPOSAL & PLAN**

### **Hair Fall Detection & Prevention System**

#### **Project Team**

<b>Full Name of Student</b>	<b>SAP Id</b>	<b>Program</b>	<b>Contact Number</b>	<b>Email Address</b>
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**Nadeem Khan**  
(Junior Lecturer)

# Hair Fall Detection & Prevention System

## Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
AI-Powered Advanced Rescue System	1.0	September 12, 2024	Original Draft	
Change idea due to unavailability of public dataset from Nadra.	1.1	September 12, 2024	Change Idea Based on Feedback from Both Supervisor & Faculty.	
Hair Fall Detection & Prevention System	2.0	September 19, 2024	New Draft	
Moved to Flutter app instead of only Web Application	2.1	September 19, 2024	Changes Based on Feedback from Supervisor & Faculty.	
Add user registration	2.1	September 19, 2024	Changes Based on Feedback from Faculty	
Upload/Take multiple pictures from different angles of scalp	3.0	September 24, 2024	Changes Based on Feedback from Supervisor.	
Hair Fall Tracking, Personalized recommendations, recommendation of nearby Dermatologist, FAQ, & Community forum	3.1	September 24, 2024	Changes made during the discussion between Project Team & Supervisor.	

# Project Proposal

**Project Title:** Hair Fall Detection & Prevention System

## **Opportunity & Stakeholders:**

Hair loss affects millions of people worldwide, and many struggle to recognize it in its early stages. This creates an opportunity to develop a system that helps users detect hair loss early and provides personalized prevention tips. With the growing interest in self-care and technology, such a system can make a big difference in helping people manage their hair health.

The main stakeholders include individuals facing hair loss, dermatologists, and healthcare providers. For individuals, the system offers early detection, advice, and community support. Dermatologists can use it to reach more patients, while healthcare providers can promote relevant products and services. This system benefits everyone involved by addressing an important health concern in a simple and accessible way.

## **Existing System/ Description of the Current Situation:**

Currently, individuals facing hair loss often rely on self-diagnosis or visit dermatologists for consultations. While there are several hair care products, medications, and natural remedies available, many users are unsure about which treatments to choose. The lack of early detection tools often results in delayed action, leading to more severe hair loss, and sometimes the only remaining solution is hair transplant surgery.

There are some applications that address related issues:

### **1. MyHairCounts App:**

MyHairCounts tracks hair loss and growth through user input. It offers personalized care tips but lacks image analysis, expert advice, and wearable integration. Improvements could include AI for image tracking, expert consultations, and gamification.

## **2. Keune Scalp Analysis:**

Keune Scalp Analysis use to diagnose scalp conditions and hair damage. It offers personalized care recommendations and is used in salons and clinics for accurate hair and scalp treatment. But it requires high resolution camera, advanced software, compatible on Windows and macOS. It also requires compressive training and technical support.

### **Problem Statement:**

Many individuals struggle to differentiate between healthy and weak hair due to a lack of knowledge, leading to untreated hair loss (alopecia) and eventually baldness. Early intervention, such as natural as well as medical remedies and proper hair care, can prevent this. While medications exist, they may have side effects, and severe cases may require hair transplants. The key issue is the need for proper guidance and continuous hair health monitoring.

### **Proposed Solution:**

We propose a mobile app that uses machine learning and computer vision to detect early-stage hair loss and offer effective predictions for prevention with the help of mobile captured images. The app will recommend dermatologists, allow users to share experiences and insights, and track hair health to monitor progress. Our goal is to provide users with expert guidance and tools to manage and prevent hair loss efficiently.

### **Scope of the Project:**

The Hair Fall Detection and Prevention System aims to provide users with an easy-to-use mobile app that identifies early signs of hair loss through scalp image analysis using machine learning techniques. The system will offer personalized prevention recommendations, such as natural remedies, lifestyle changes, and, when necessary, dermatologist consultations.

**Key features of the project include:**

1. **Early Hair Loss Detection:** Using image classification techniques to analyze scalp images.
2. **Personalized Recommendations:** Offering tips on natural remedies, healthy foods, and dermatologist referrals based on individual hair conditions.
3. **Progress Tracking:** Allowing users to monitor their hair health over time.
4. **Social Sharing:** Enabling users to share their progress and experiences with others.
5. **Dermatologist Network:** Recommending nearby specialists for professional treatment.

This system will be accessible to a broad range of users, aiming to provide a comprehensive solution for both early detection and ongoing hair health management.

# List of Faculty Proposed Changes

## Hair Fall Detection & Prevention System

Supervisor's Signature: \_\_\_\_\_

Proposed Change	Proposed By	Supervisor's Decision
	Name of Faculty Member(s) who proposed this change	Approved/Disapproved and/or Comments
Need to explore more literature and work accordingly. Problem still not clear.	Mr. Mubariz Rehman	Approved
Lack of literature review. Project not cleared problem still not clear suggestion get strong literature and also decide final the Web app or mobile app.	Mr. Muhammad Usman	Approved
The project is still not up to the mark as lack of the literature and unawareness of the domain this should be matured to make FYP product.	Mr. Waqar Arshad	Approved
Features and survey not appropriate. Redo literature review.	Mr. Zeeshan Ali	Approved
Domain knowledge required, update according to the discussion.	Mr. Sharjeel Gillani	Approved

# Project Plan

## Work Breakdown Structure

[illegible]

## Roles & Responsibility Matrix:

The purpose of roles & responsibility matrix is to identify who will do what.

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1	Requirements gathering.	1		30	Muhammad Talha Asghar
2	Flutter Application Design (Frontend)	1	Designing different screens	25	Noor Ullah Shah
		2	Implementing different widgets in screens of flutter app.	25	
3	Implementing machine learning components like CNN algorithms.	1	Start to Implement hair fall detection.	30	Dilawar Shah
		2	Collecting dataset.	20	Muhammad Talha Asghar
4	Model Training	1	Training the model using machine learning techniques.	45	Dilawar Shah
		2	Testing with sample data from different stakeholders.	15	Noor Ullah Shah
5	Documentation	1	Making UML diagrams.	45	Dilawar Shah
		2	Project reporting and progress		
6	API's Integration	1	Integrating APIs to facilitate communicate between mobile app and backend.	25	Noor Ullah Shah, Dilawar Shah



7	Flutter Application Development (Backend)	1		30	Noor Ullah Shah, Dilawar Shah
		2	Authorization and authentication.		
8	Testing	1		20	Muhammad Talha Asghar, Noor Ullah Shah, Dilawar Shah

## Approval

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### Project Supervisor

Comments \_\_\_\_\_  
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Name: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

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### Project Coordinator

Comments \_\_\_\_\_  
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Name: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_