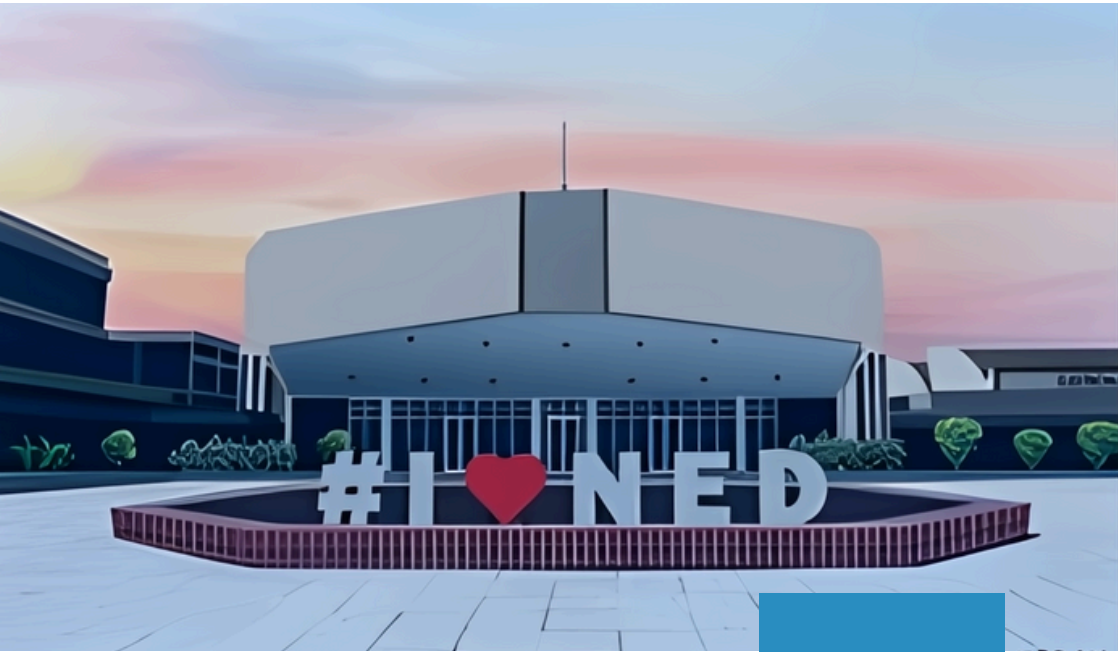


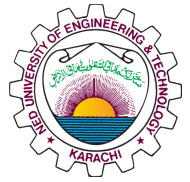
FYDP Booklet

NED UNIVERSITY

Batch 2021



Department of Software
Engineering



MESSAGE FROM THE DEAN

It is a moment of great pride to witness the culmination of the hard work, creativity, and perseverance of the Batch of 2021, reflected in their Final Year Design Projects.

The projects showcased in this booklet are a testament to the creativity, technical knowledge, and resilience of our students, who have persevered through unique challenges during their academic journey. These projects reflect not only the rigorous academic training imparted at our institution but also the students' commitment to addressing real-world problems with innovative and sustainable solutions.

At a time when the world is rapidly evolving, it is inspiring to see our graduates rise to the occasion, demonstrating their readiness to contribute meaningfully to industry, research, and society at large. The breadth and depth of topics explored, ranging from cutting-edge technologies to community-focused initiatives, underscore the multidisciplinary spirit and forward-looking vision that we aim to instill in all our students.

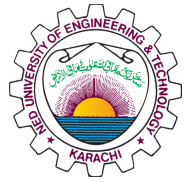
I extend my heartfelt congratulations to the Batch of 2021, their supervisors, and the faculty members whose guidance and mentorship have been instrumental in shaping these remarkable projects. I am confident that our graduates will carry forward the legacy of excellence, leadership, and innovation wherever their paths may lead.

Wishing you all continued success and fulfillment in your future endeavors.

Dr. Saad Ahmed Qazi

Dean Faculty of Electrical & Computer Engineering

Department of Software
Engineering



FOREWORD

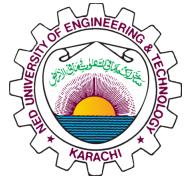
It gives me immense pleasure to present the Abstract Booklet for the Final Year Design Projects (FYDP) undertaken by the talented graduating students of the Department of Software Engineering. This compilation is not merely a catalog of academic efforts – it is a testament to the creativity, technical expertise, and problem-solving acumen our students have honed over the course of their education.

At its core, software engineering is about building solutions that address real-world challenges. The projects featured in this booklet reflect a wide range of contemporary issues, from innovative applications in artificial intelligence and data science to transformative solutions in healthcare, education, finance, and sustainability. Each project demonstrates a commitment to rigorous design principles, user-centric development, and an entrepreneurial spirit that we are proud to cultivate in our graduates.

Our curriculum emphasizes bridging the gap between theory and practice, and these projects are the culmination of that philosophy. Working closely with faculty mentors, industry advisors, and sometimes even real clients, our students have engaged in projects that simulate professional environments and demands. Through this experience, they have developed critical skills – technical depth, project management, communication, and ethical responsibility – that are essential for success in the rapidly evolving technology landscape.

Department of Software
Engineering





FOREWORD

This booklet is intended not just to highlight their achievements but also to extend an invitation to our industry partners and stakeholders: to collaborate, to innovate, and to invest in the promising future these young professionals represent. We are confident that they are well-equipped to contribute meaningfully to the software industry and to society at large.

I congratulate all the students, faculty supervisors, and project collaborators for their hard work and dedication. I hope you find inspiration in these pages and witness the bright future that lies ahead for software engineering.

Prof. Dr. Shehnila Zardari
Chairperson
Department of Software Engineering

Department of Software
Engineering



LIST OF PROJECTS



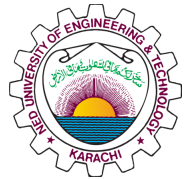
S.No	Project Title	Page No.
1	AgriSense: Smart Solutions for Precision Farming	7
2	FLINT- AI-Powered SDLC Automation	8
3	NeuroWave - Mind-Controlled Assistive Intelligence	9
4	Asaan Campus - Your Campus in your Pocket	10
5	InfoCore - AI Driven Data Deduplication & Event Categorization Tool	11
6	Cognitia - An Innovative EdTech Solution	12
7	ScholarSphere - Exploring International Research Opportunities	13
8	Agaahi - AI-Powered Data Analytics Automation	14
9	FiberSync: Decentralized SCM for Textiles	15
10	HeartLens - Automated ECG Interpretation for STEMI Detection	16
11	SportEaze - Raising The Pakistani Talent	17
12	StudyPilot - NLP based Student Companion System	18
13	ServiceEase - Delivering ease with speed	19
14	AutoCare - Speech & Behavior App for Autistic Kids	20



LIST OF PROJECTS



S.No	Project Title	Page No.
15	AgencySoul - A Minimal Solution For Small Agencies	21
16	ARIAS - Automated Recruitment Intelligence and Analytics System	22
17	SyncStream - A Platform Integration System	23
18	Feed Forward: A Smart Food Redistribution App for Community Impact	24
19	HeartHeard : An AI powered mental health app	25
20	ChipInsight - Deep Analysis for Uncovering Defects in Semiconductor Chip Production	26
21	SentiCare - An AI Driven Mental Health Support	27
22	PlantWise - Empowering you to the green world	28
23	Dental Wellness - AI Assisted Oral Care App	29
24	Confidential Copilot (CC) - GenAI Served Securely	30
25	Big Data Driven Analysis of Green House Gas Shifts Using Explainable AI	31
26	ResourceHive – AI-Powered Smart Maintenance Solution for Healthcare	32
27	LandGuard - Smart Urban Greenery Monitoring System	33



AgriSense

Project ID: SE-21001

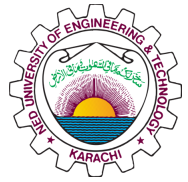
Supervisor: Prof. Dr. Shehnida Zardari

ABSTRACT

In modern agriculture, effective resource management and crop health monitoring are crucial for ensuring sustainable crop production and food security, with estimates suggesting that precision agriculture techniques could reduce input costs by up to 30%. *AgriSense* addresses these challenges by offering an IoT-based system designed to help farmers monitor and manage soil, crops, and environmental conditions. The system uses an ESP32-connected sensor to measure soil conditions, transmitting data via LoRaWAN to a cloud platform while operating on solar power, ensuring functionality in remote areas. *AgriSense* empowers farmers through its mobile application featuring real-time soil monitoring dashboards, data-driven agricultural recommendations, and advanced crop management tools. Using Retrieval-Augmented Generation methodology with large language models, the system provides contextually appropriate agricultural guidance. Additional capabilities include disease detection through convolutional neural networks, and a sophisticated task and advisory system that combines soil data with weather forecasts to optimize resources. Initial testing has demonstrated the system's effectiveness across diverse agricultural environments. *AgriSense's* multilingual application makes precision agriculture accessible to farmers of all technical skill levels. By leveraging AI, *AgriSense* enhances productivity, reduces costs, and improves crop quality while promoting sustainable farming that strengthens food security and agricultural economies.

Group Members:

- Syed M Ammar (SE-21089)
- Mohammad Osama (SE-21091)
- Sahil (SE-21092)
- Hassan Shahid (SE-21099)



FLINT

Project ID: SE-21002

Supervisor: Prof. Dr. Shehnida Zardari

ABSTRACT

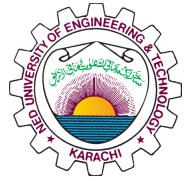
FLINT is an advanced AI-powered project management platform engineered to automate and enhance the Software Development Life Cycle (SDLC). By integrating Generative AI and Natural Language Processing (NLP), FLINT streamlines critical processes such as requirement documentation, UML diagram generation, and intelligent task allocation. The platform intelligently assigns tasks based on team members' skills, experience, and availability, ensuring optimal resource utilization and alignment with project goals.

FLINT's resume parsing and skill extraction capabilities further bolster team efficiency by accurately identifying and matching individual competencies to project requirements. This automation reduces manual intervention, minimizes errors, and accelerates project timelines, leading to improved overall productivity and higher success rates.

Group Members:

- Rajja Farhan (SE-21058)
- Usman Siddiqui (SE-21075)
- Aqsa Irfan (SE-21053)
- Talal Zafar (SE-21076)

Department of Software
Engineering



NeuroWave

Project ID: SE-21003

Supervisor: Prof. Dr. Shehnila Zardari

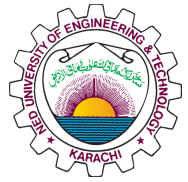
ABSTRACT

NeuroWave, Mind-controlled Assistive Intelligence, offers a breakthrough in Brain-Computer Interfaces by transforming brain signals into seamless action and commands via EEG headsets using P300 paradigm, powered by a novel **context-aware AI orchestration layer** built on our **first-of-its-kind** Neuro-Adaptive Cognitive Orchestration Framework (NACO). This allows users without movement to intuitively manage sophisticated communication, access AI-powered therapeutic tools, and control their smart environment **without lifting a finger**. NeuroWave restores communication, enables independence through agentic architecture with LLMs & IoT control, and enhances well-being via accessible therapy, fundamentally improving the quality of life for those locked in by physical limitations.

Group Members:

- Muhammad Anas Khan (SE-21079)
- Muhammad Farzam Ali Khan (SE-21086)
- Muhammad Talha Arshad (SE-21088)
- Muhammad Zeeshan Akram (SE-21097)

Department of Software
Engineering



Asaan Campus

Project ID: SE-21004

Supervisor: Dr. Raheela Asif

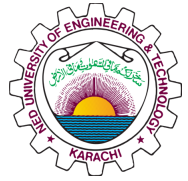
ABSTRACT

Asaan Campus is a smart mobile application designed to enhance NED University's digital infrastructure by unifying academic, administrative, and communication services into one platform. It offers real-time notifications, AI chatbot support, and a user-friendly experience to streamline access for students, faculty, and staff. Built using React Native and .NET Core, the app aims to modernize operations, improve engagement, and create a more connected and efficient university environment.

Group Members:

- Muhammad Muddassir (SE-21022)
- Azib Khalid (SE-21034)
- Muhammad Ahsan(SE-21044)
- Syed Hilal Hussain (SE-21049)

Department of Software
Engineering



InfoCore

Project ID: SE-21005

Supervisor: Dr. Raheela Asif

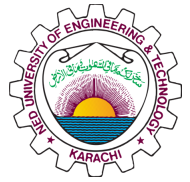
ABSTRACT

Digital data generation in the world continues to grow at an unprecedented rate. Currently, human curators manually review and extract important events, dealing with challenges like language ambiguities and contextual differences, to compile reports for stakeholders. However, this process is slow, effort-intensive and often results in delays and missed opportunities. InfoCore aims to utilize LLMs and advanced NLP techniques to automate the identification, clarification and categorization of named entities as well as to eliminate duplicate documents. By streamlining these processes and enabling real time event categorization, InfoCore seeks to enhance data curation efficiency and accuracy, to benefit organizations by delivering timely, relevant insights from vast amounts of data.

Group Members:

- Amna Amir (SE-21055)
- Bisma Zehra (SE-21057)
- Yousma Ahmed (SE-21070)

Department of Software
Engineering



Cognitia

Project ID: SE-21006

Supervisor: Dr. Raheela Asif

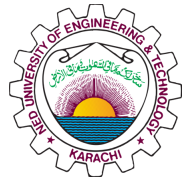
ABSTRACT

Cognitia addresses the shortcomings of traditional online learning by using Retrieval Augmented Generation (RAG) to provide highly accurate, reliable, and tailored content that aligns with students learning styles, goals, hobbies, and challenges. This innovative platform offers multi-modal learning with deep personalization and customized learning schedules featuring strict daily monitoring, all powered by AI agents. By analyzing student interactions, it identifies their difficulties and, based on these insights, offers the dynamic generation of assessments, presentations, and interactive flashcards. Cognitia promotes long-term retention, provides a holistic learning environment and fosters collaboration through Chat and peer review discussions. Beyond students, it empowers educators with a comprehensive panel to generate learning materials. Teachers can also generate and automatically check assignments, with detailed analytics to identify class-wide issues. More than just a learning platform, Cognitia revolutionizes how students learn and teachers teach.

Group Members:

- Ahmed Gala (SE-21077)
- Muhammad Zain Ul Abedin (SE-21081)
- Syed Arsalan(SE-21084)

Department of Software
Engineering



ScholarSphere

Project ID: SE-21007

Supervisor: Engr. Dr. Muhammad Faraz Hyder

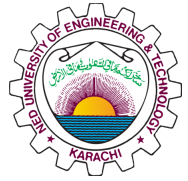
ABSTRACT

ScholarSphere is an AI-powered web platform designed to simplify the discovery of global academic opportunities, including research grants, journals, and conferences. The current landscape is fragmented, requiring researchers to navigate multiple, outdated, or unfiltered sources. ScholarSphere addresses this gap by providing a centralized solution that leverages the concept of machine learning for personalized recommendations using content-based filtering and web scraping techniques for real-time data updates. Developed using the MERN stack, the platform offers an intuitive user interface with advanced filtering options to match opportunities with user profiles. By promoting accessibility and reducing the time and effort required to find relevant academic resources, ScholarSphere supports students and researchers in advancing their academic and professional careers.

Group Members:

- Maryam Ansari (SE-21074)
- Muhammad Faiq Israr (SE-21096)
- Samran Fatima(SE-21303)

Department of Software
Engineering



Agaahi

Project ID: SE-21008

Supervisor: Engr. Asma Khan

ABSTRACT

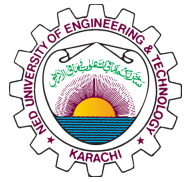
Agaahi is an AI-based analytics system built to revolutionize the way users retrieve information from complex databases. Built on the foundations of large language models, retrieval-augmented generation (RAG), and robust SQL orchestration, Agaahi enables natural language querying, automated SQL generation, secure data access, and non technical user-friendly insight delivery. It allows users to understand critical data regardless of their technical knowledge.

Agaahi empowers business owners by streamlining decision making through powerful and customized visualizations, reducing the dependency on data analytical teams and allowing users to ask their queries in natural language. It provides data confidentiality by implementing Role-Based Access Control.

Group Members:

- Khushbakht Khan (SE-21009)
- Sarah Sami (SE-21026)
- Syed Aun Muhammad (SE-21036)
- Moiz Naveed (SE-21048)

Department of Software
Engineering



FiberSync

Project ID: SE-21009

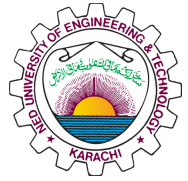
Supervisor: Engr. Asma Khan

ABSTRACT

FibreSync is a **decentralized** textile supply chain management platform designed to enhance transparency, traceability, and operational efficiency across the industry. By securely recording the complete **lifecycle of products**, from raw material sourcing to final delivery, FibreSync ensures authenticity, reduces operational risks, and builds **greater trust** among global buyers. Leveraging blockchain technology and smart contracts, it automates critical processes, while IPFS integration optimizes data management. FibreSync empowers textile businesses to meet modern supply chain demands with increased reliability and competitiveness.

Group Members:

- Aneeqa Baig(SE-21064)
- Muteeba Ahmed(SE-21065)
- Uraiba Mustijab(SE-21067)
- Muhammad Zubair(SE-21094)



HeartLens

Project ID: SE-21010

Supervisor: Engr. Asma Khan

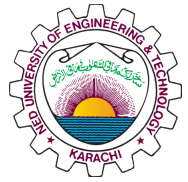
ABSTRACT

ST-Elevation Myocardial Infarction (STEMI) is a severe heart attack requiring urgent diagnosis to prevent life-threatening complications. Traditional ECG interpretation is often time-consuming, error-prone, and dependent on professional cardiologists, especially in resource-limited settings. HeartLens is a mobile app that uses deep learning to detect STEMI from 12-lead ECG reports, confirming its presence and localizing the affected heart region. Designed for both general practitioners and the general public, HeartLens offers easy-to-understand reports, serving as a valuable tool for rapid assessment and a second opinion in time-sensitive situations.

Group Members:

- Alishba Mumtaz (SE-21054)
- Maheen Siraj (SE-21059)
- Maria Munawwar (SE-21073)

Department of Software
Engineering



SportEaze

Project ID: SE-21011

Supervisor: Dr. Syed Muhammad Sheraz

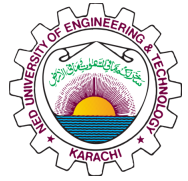
ABSTRACT

SportEaze is an innovative digital platform designed to **empower Pakistani athletes**, especially in lesser-known sports, by **bridging the critical gaps of visibility, mentorship, and sponsorship**. Despite immense talent, thousands of athletes remain undiscovered due to the lack of digital presence and financial support. SportEaze creates a centralized space where athletes can build professional profiles, showcase their achievements, connect with mentors, attract sponsors, and engage with a supportive sports community.

Through SportEaze, we aim to democratize access to opportunities, foster talent development, and drive the growth of Pakistan's **sports ecosystem beyond traditional mainstream arenas**. By leveraging technology and community-building strategies, SportEaze aspires to transform the journey of emerging athletes — from local champions to global contenders — and make a lasting **impact on the future of sports in Pakistan**.

Group Members:

- Mahnoor Waseem (SE-21017)
- M. Jazeb Javed (SE-21030)
- M. Daniyal Lodhi (SE-21041)
- Zohaib Ali (SE-21043)



StudyPilot

Project ID: SE-21012

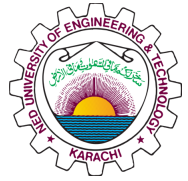
SUPERVISOR: DR. SYED MUHAMMAD SHERAZ

ABSTRACT

Studypilot aims to revolutionize education by harnessing the power of Natural Language Processing (NLP) and Artificial Intelligence (AI). Our platform enhances student performance, supports educators, promotes inclusivity, and encourages lifelong learning. By bridging the knowledge gap and improving access to educational resources, Studypilot simplifies complex academic tasks and fosters a more engaging and supportive learning environment. Through intelligent query resolution, classroom management tools, and seamless document retrieval, we deliver a scalable, globally adaptable solution to transform education for the digital age.

Group Members:

- Syed Abdul Mohib: SE-21095
- Syed Tayyab Ali Shah :SE-21101
- Zohaib Jalal: SE-21100



ServiceEase

Project ID: SE-21013

Supervisor: Engr. Sidra Masood

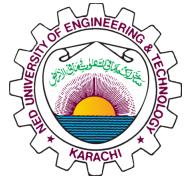
ABSTRACT

ServiceEase is a mobile application that aims to streamline the process of availing services such as *gas cylinder and its refills*, *water tankers* and *rental generators* from **verified vendors**, providing a reliable backup in times of shortages. This project has been specifically designed for the residents of Karachi that face frequent disruptions in essential utility services on a daily basis. ServiceEase ensures continuous access to these utility services at one place, therefore enhancing the quality of life and supporting local businesses, and making survival easier in the present and near future. This project will serve as a *bridge between vendors and consumers* in need of on demand services in a single, user-friendly platform.

Group Members:

- Umme Hani (SE-21006)
- Syeda Ramsha (SE-21011)
- Bisma Shuja (SE-21024)
- Uzair Asif (SE-21032)

Department of Software
Engineering



Auticare

Project ID: SE-21014

Supervisor: Engr. Sidra Masood

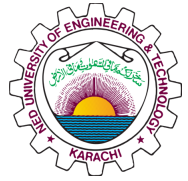
ABSTRACT

Autism Spectrum Disorder (ASD) affects millions of children, causing challenges in **communication**, **behavior**, and **social skills**. In Pakistan, limited access to affordable care delays early intervention. **AutiCare** is a mobile application that helps parents, caregivers, and teachers support autistic children at home through structured, *research-backed activities* and *games*. With a user-friendly interface, progress tracking, and secure data management via React Native and Django, AutiCare promotes consistent engagement without requiring specialized training. It offers an accessible, affordable solution to enhance early development and foster a more inclusive society.

Group Members:

- Afra Rasheed (SE-21007)
- Sara Aziz (SE-21025)
- Muhammad Sarim Hashmi (SE-21038)
- Muhammad Asim (SE-21045)

Department of Software
Engineering



Agency Soul

Project ID: SE-21015

Supervisor: Engr. Sidra Masood

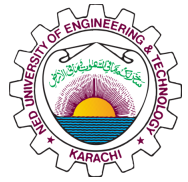
ABSTRACT

Small agencies often face two bad choices: expensive, complex ERPs that need technical staff, or basic tools that are inefficient. AgencySoul fills this gap by offering a simple, affordable, webbased ERP tailored for small agencies. It combines essential HRM, Accounting, CRM, and Project Management into one platform, with an AI Agent that lets users retrieve data and automate tasks through natural language. Our mission is to become the soul of small agencies by making smart management simple and accessible.

Group Members:

- Shaikh Saqlain Ahmad (SE-21037)
- Maqsood Ahmed (SE-21040)
- Absar Ali (SE-21047)

Department of Software
Engineering



ARIAS

Project ID: SE-21016

Supervisor: Engr. Sana Fatima

ABSTRACT

ARIAS is a comprehensive AI-driven recruitment platform designed to streamline and optimize the hiring process. Focused on promoting fair opportunities and automation, ARIAS integrates key functionalities such as email parsing, resume analysis, resume synopsis extraction, candidate recommendation, job skill prediction, LinkedIn job posting, and interview scheduling. By automating critical recruitment tasks, the system enhances the efficiency of Human Resource (HR) departments while maintaining minimal operational costs, offering an effective and accessible solution for modern hiring challenges.

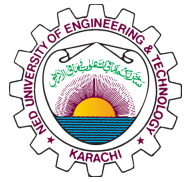
Group Members:

Maham Tariq Khan (SE-21004)

Syeda Umm E Abiha Rizvi (SE-21014)

Hamna Aamir (SE-21016)

Department of Software
Engineering



SyncStream

Project ID: SE-21017

Supervisor: Engr. Sana Fatima

ABSTRACT

Businesses today face major challenges with manual data entry between systems, leading to frequent errors, increased operational costs, and reduced overall efficiency. SyncStream addresses these issues by providing an advanced integration and synchronization platform that automates and streamlines data exchange across business systems. Offering both real-time and scheduled syncing capabilities, SyncStream eliminates the need for manual processes, minimizes data inaccuracies, reduces operational expenses, and significantly boosts organizational productivity. Beyond supporting out-of-the-box integrations like Shopify and HubSpot, SyncStream empowers businesses to register and connect custom platforms effortlessly by simply entering API details. With features such as detailed logging, multi-user access control, and customizable workflows, SyncStream delivers a transparent, scalable, and user-friendly solution to modern data integration challenges.

Group Members:

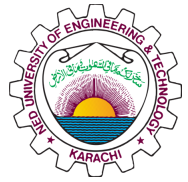
Muhammad Anas (SE-21020)

Bakhtiar Ahmed (SE-21029)

Ammar Ahmed Khan (SE-21033)

Fawad Tariq (SE-21050)

Department of Software
Engineering



FEED FORWARD

Project ID: SE-21018

Supervisor: Dr. Mustafa Latif

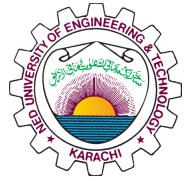
ABSTRACT

Feed Forward is a food redistribution platform that connects donors (factories, restaurants) with charities, buyers, and volunteers to minimize food waste. Donors can offer surplus food as donations or discounted sales, while charities and volunteers manage pickups and deliveries efficiently. The app offers real-time analytics, dynamic search, communication tools, and funding options. By fostering collaboration, promoting sustainability, and encouraging economic participation, Feed Forward ensures surplus food benefits communities instead of contributing to environmental waste.

Group Members:

- Ariba Siddiqui (SE-21052)
- Aiman Aamir (SE-21056)
- Zainab Iman Khan (SE-21061)
- Khawar Khan (SE-21093)

Department of Software
Engineering



Heart Heard

Project ID: SE-21019

Supervisor: Engr. Sana Fatima

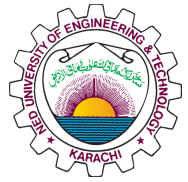
ABSTRACT

Mental health disorders affect one in eight people worldwide, yet millions lack access to proper care, especially in countries where stigma remains strong. In Pakistan, social barriers and limited resources leave many struggling alone. HeartHeard is built to change this—an AI-powered platform offering 24/7 emotional support through a conversational 3D avatar, emotional health detection, mood tracking, mindfulness tools such as therapeutic exercises, games and music, psychologist referrals and a shareable community template maker. With a freemium model that expands into personalized therapeutic plans and mental health reports, HeartHeard aims to make emotional care in Pakistan accessible, affordable, and deeply human.

Group Members

- Areeha Fareed (**SE-21072**)
- Sadia Sami (**SE-21301**)
- Ayesha Khan (**SE-21302**)
- Faiza Ashfaq (**SE-21304**)

Department of Software
Engineering



ChipInsight

Project ID: SE-21020

Supervisor Engr. Dr. Mustafa Latif

ABSTRACT

The increasing complexity of semiconductor chips, driven by rapid advancements in electronic devices, has outpaced traditional inspection methods, which are labor-intensive and susceptible to human error. To address these challenges, this project introduces an automated system leveraging computer vision for accurate semiconductor component recognition and defect detection. By minimizing manual inspection efforts and enhancing quality control, the system aims to improve manufacturing efficiency and meet the rising demand for high-quality electronic components.

Group Members:

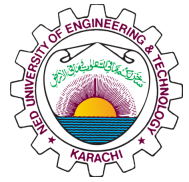
Fiza Saeed (SE-21060)

Sana Habib (SE-21062)

Simra Shahid (SE-21063)

Tehreem Fatima (SE-21069)

Department of Software
Engineering



SentiCare

Project ID: SE-21021

Supervisor Engr. Naveera Sami

ABSTRACT

Mental health services in Pakistan are often expensive and inaccessible, leaving many individuals without support. SentiCare offers an AI-powered chatbot that provides affordable, real-time emotional support using advanced sentiment analysis. It detects users' emotional states and delivers personalized coping strategies, ensuring quick responses and crisis intervention when needed. Built for both web and mobile platforms, SentiCare maintains strict data privacy while creating an empathetic and user-friendly experience. This project aims to make mental health support more accessible, contributing to better well-being and reduced inequalities.

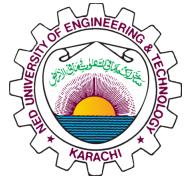
Group Members:

Abdul Moiz Azher (SE-21021)

Musadique Hussain (SE-21031)

Muhammad Junaid Jamshed (SE-21035)

Department of Software
Engineering



PlantWise

Project ID: SE-21022

Supervisor Engr. Naveera Sami

ABSTRACT

PlantWise is a mobile application designed to simplify plant identification and care using image recognition technology. Developed with Flutter, Firebase, and TensorFlow, the app provides users with personalized care tips, plant health tracking, and growth monitoring. Aimed at addressing deforestation and promoting urban greenery, PlantWise also plans to incorporate an e-commerce platform, gamification features, and remote sensing for enhanced user engagement and environmental impact.

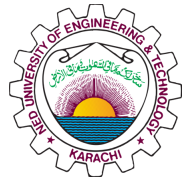
Group Members:

Suhaib Khan (SE-21078)

Ismail Ahmed Bajwa (SE-21080)

Widad Abdullah (Se-21085)

Syed Ayhan Habib (SE-21098)



Dental Wellness

AI Assisted Oral Care App

Project ID: SE-21023

Supervisor: Engr. Sheerina Khattak

ABSTRACT

The app has been designed for dental patients, hospitals and clinics seeking to upgrade their diagnostic capabilities. This app will utilize advanced Deep Learning and Machine Learning algorithms to detect oral cancer, ulcers and other oral diseases. It increases diagnostic accuracy, facilitates patient care, and promotes the use of advanced technology in dental clinics, thus becoming a useful tool in enhancing the outcomes of patients in various dental settings.

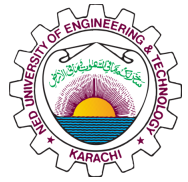
Group Members:

Sara Hameed (SE-21012)

Sara Naeem Aslam (SE-21015)

Meerab Tahir (SE-21019)

Department of Software
Engineering



Confidential Copilot - CC

Project ID: SE-21024

Supervisor: Engr. Sheerina Khattak

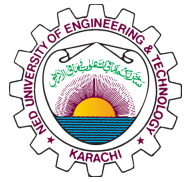
ABSTRACT

Enterprises in regulated domains—finance, healthcare, law—hold troves of sensitive text (contracts, emails, meeting transcripts, strategic plans), yet conventional RAG pipelines expose data or embeddings in plaintext. Confidential Copilot closes this gap with the first end-to-end-encrypted RAG platform that preserves zero-trust guarantees while operating at near-plaintext speed. Raw artefacts are encrypted client-side with AES-GCM, and vector embeddings are protected by Distance-Comparison Preserving Encryption (DCPE), which keeps distance metrics intact. We prototyped three encrypted pipelines—DCPE, Paillier homomorphic encryption, and KNN encryption—and benchmarked them against a plaintext baseline on identical corpora and queries. DCPE emerged as the optimal choice, avoiding Paillier’s heavy computational cost and KNN’s ciphertext bloat. The chosen DCPE pipeline enables high-performance similarity search on protected vectors in a cloud Postgres/Supabase + pgvector stack; keys never leave the data owner, and no unprotected information is exposed during storage, retrieval, or generation. Confidential Copilot thus proves that practical, scalable, privacy-preserving RAG is achievable today.

Group Members:

- Maha Khan SE-21051
- Nabiha Waseem SE-21066
- Ayesha Imran SE-21068
- Moneebah Noman SE-21077

Department of Software
Engineering



Big Data Driven Analysis of Greenhouse Gas Shifts Using Explainable AI

Project ID: SE-21025

Supervisor: Prof. Dr. Shehnida Zardari

ABSTRACT

The project "Big Data-Driven Analysis of Greenhouse Gas Shifts Using Explainable AI" focuses on developing a big-data-driven, transformer-based time series model to predict greenhouse gas (GHG) emissions with high accuracy and transparency. It addresses the limitations of traditional forecasting methods by incorporating explainable AI techniques to enhance interpretability for stakeholders. The model will process complex datasets relevant to South Asia, leveraging advanced transformer architectures to provide actionable, understandable insights that support climate change mitigation efforts.

Group Members:

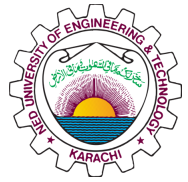
Maria Ashfaq (SE-21005)

Laiba Muhammad Ali (SE-21010)

Aqsa Zaib(SE-21013)

Muazzam Khan(SE-21042)

Department of Software
Engineering



ResourceHive

Project ID: SE-21026

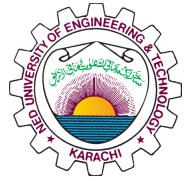
Supervisor: Engr. Dr. Muhammad Faraz Hyder

ABSTRACT

ResourceHive is a platform designed for real-time health monitoring and predictive maintenance of healthcare equipment. By leveraging machine learning models, it predicts potential failures and optimizes maintenance schedules to minimize downtime and enhance operational efficiency in healthcare institutions. The platform collects and analyzes real-time data from critical medical devices such as ventilators, MRI machines, and patient monitors, issuing maintenance alerts upon detecting deviations in operational parameters.

Group Members:

- Izma Shafqat (SE-21003)
- Inshara Iqbal (SE-21018)
- Moin Rauf (SE-21039)
- Sahil Krishna (SE-21046)



LandGuard

Project ID: SE-21027

Supervisor: Prof. Dr. Shehnila zardari

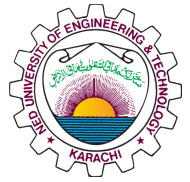
ABSTRACT

LandGuard is a web-based platform designed to support **urban greening efforts**, particularly in rapidly growing cities like Karachi. It **identifies public areas available for plantation** such as public parks, schools, colleges, grounds, and empty lands with **low greenery levels**. The platform serves **citizens, environmental organizations, and institutions** by providing an interactive map where users can explore under-vegetated areas, initiate or join **plantation drives**, log their activities, and propose new plantation sites. Users can also track the environmental impact of their efforts over time through **historical NDVI analysis**. By connecting people, data, and action, LandGuard empowers communities to collaborate in creating greener, healthier cities for future generations.

Group Members:

- Ayesha Imam (SE-21001)
- Sana Maryam (SE-21002)
- Mahnoor Iqbal (SE-21027)
- Fatima Zehra (SE-21028)

Department of Software
Engineering



Department of Software
Engineering