

SCHOOL OF ELECTRONICS ENGINEERING  
KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY  
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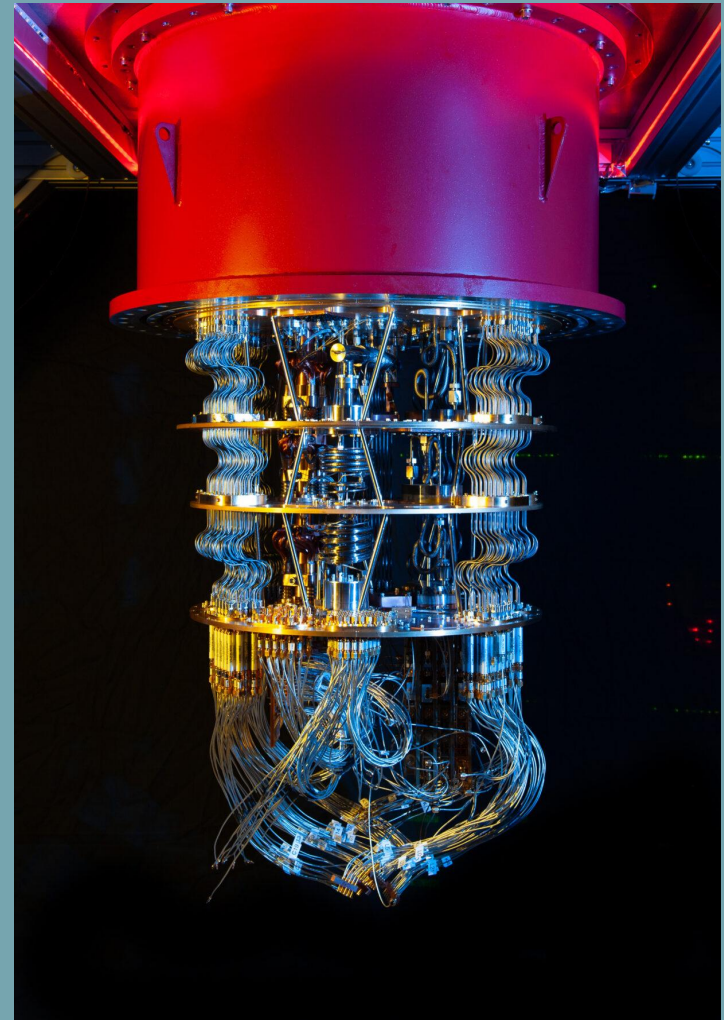
# Minor Project (EC 3082)

## Commercial-Kourrier

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“A software and  
machine learning based  
SOLUTION to counter  
the negative impact of  
industrial paper  
production on NATURE  
and the ECONOMY.”



# Introduction

During the COVID-19 pandemic students and working professionals all over the world transitioned to **electronic media** that changed the global work culture.

The future is digital and needs integration and a **hybridized** system to evolve.

Therefore, we students from the department of electronics & telecommunication have decided to develop a software based solution to tackle the impact of:

- Large-scale industrial paper production on **environment**.
- **Institutional & courier charges** for the distribution of study materials/textbooks per semester in an academic year.

# Problem Statement

Since the pandemic has begun, students have been receiving a good amount of books and study materials delivered via courier per semester.

The materials can be divided into core and non-core domains. For instance, **Engg.**, **Maths**, **Signal Processing** and **Networking** find their place under core subjects, whereas **P. Com.** and **Biology** are listed under the non technical wing of syllabus that demands theoretical expertise.

Therefore, students should always have a choice to receive a particular volume in either electronic format (PDFs, ODP, Doc) or hardcopy, depending upon their need in this **online world of education**.

This customized mechanism will help a learner optimize his study routine by reading books from a combination of:

- **Electronic devices** (laptops/smartphones/tabs) and
- **Paperback** (hardcopy).

This, as a consequence, will not only help save the transport & delivery charges but will also exponentially reduce the production amount of paper in institutions on a global scale.

# The Solution

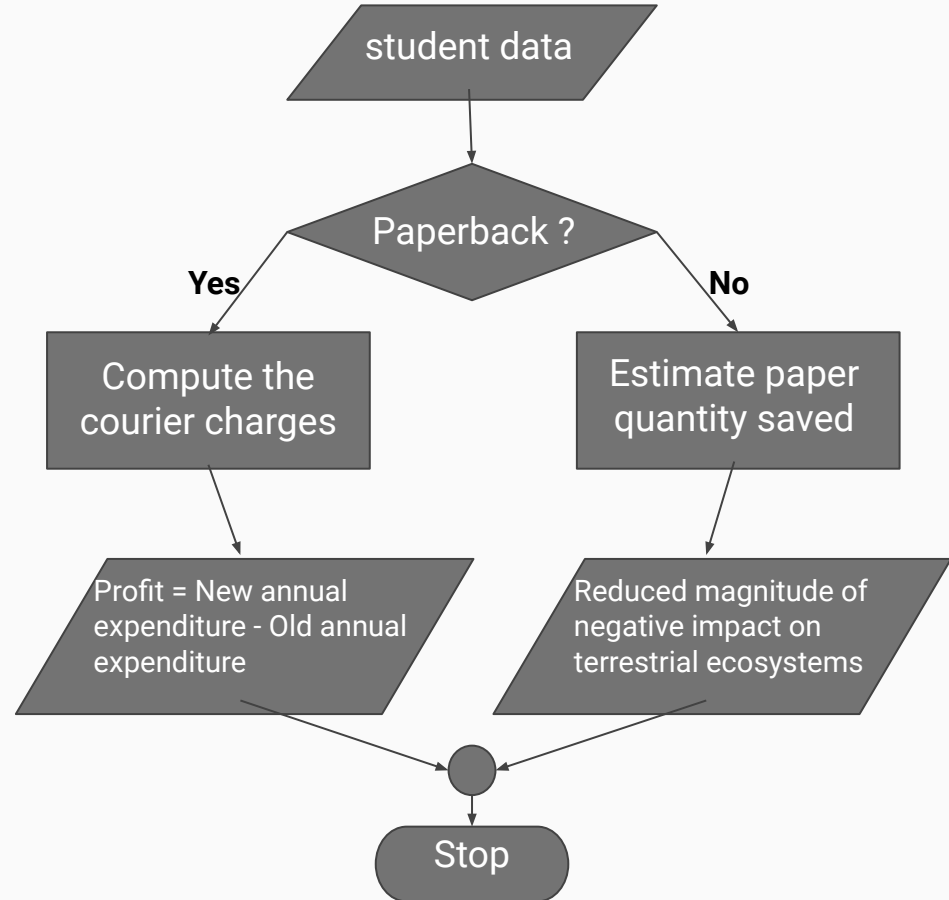
The solution to this problem lies in building an efficient Web Application that can handle the student data and predict the student inputs in future semesters using ML. The mechanism then stores the student data and **computes the quantity** of material that needs to be delivered via courier and electronic formats.

Lastly, the charges are estimated per student and an analysis is performed that displays the quantity of **paper saved** per academic semester/year.

Tools and technologies to be implemented:

1. Programming & Analysis: C++, Python
2. Data Visualization: Matplotlib, Seaborn

## Algorithm



# Advantages

- Reduction in deforestation.
- Portability and better memory management.
- Decrease in the amount of industrial toxins used to create pulp and bleach.
- Boost in the efficiency of water treatment.
- Promotes the concept of three R's (Reduce, Reuse & Recycle)

IT industry once predicted that its emergence is to make paperless offices but its amazing to find that about 95% of office work across the world is still done on paper.

42% of all global wood harvest is used to make paper. Is it really worth it to cut down our life saving trees for this product?

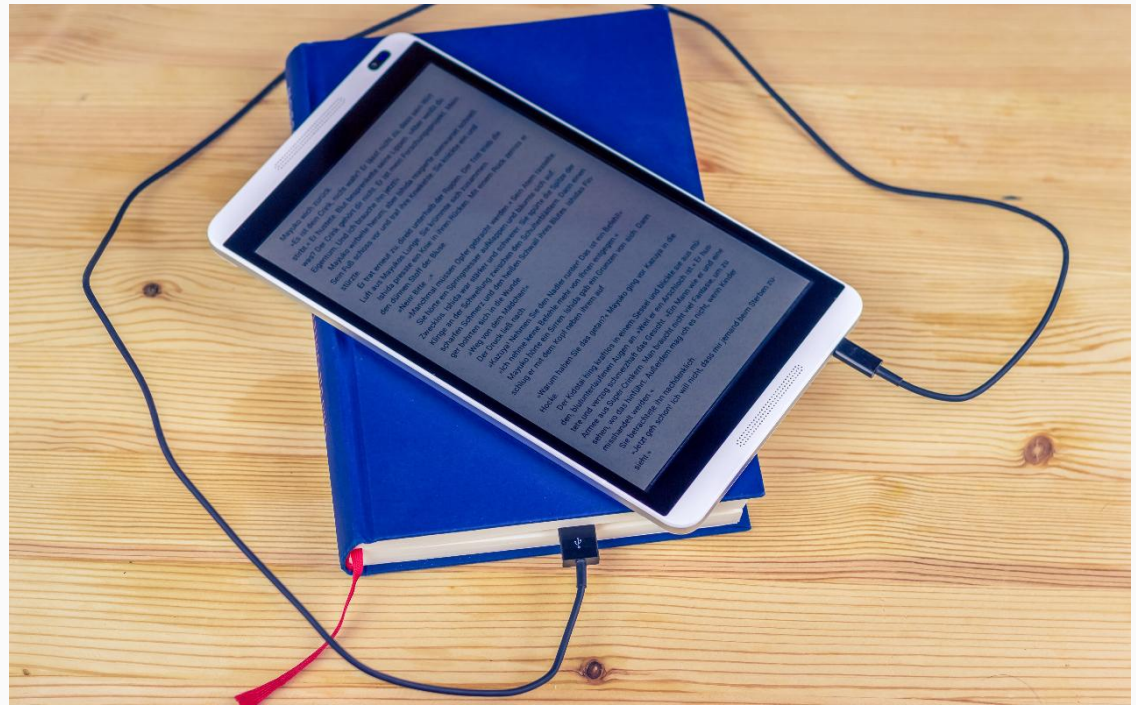
Also the bleaching reagents without proper treatment that get released into river bodies prove to be graveyard for hydrological ecology.

According to a survey, an average tree gets converted in to 12000 A4 sheets. As per our calculations, we require almost 300 trees to run an engineering semester (6 month duration) and a tree requires a minimum of 3 years to grow and become mature.

# Thank you!

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