



# Sansadhan Prabhandan

University Grants Commission (U.G.C)  
PS: VS935 (Miscellaneous)  
Institute of Engineering & Technology, DAVV

## Buggy Decoders

# Problem Statement: VS935

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"In order to optimize the resource amongst the HEIs, to enhance utilization, and to share the advanced resources, the portal needs to be developed. On this, all HEIs will put their resources and applicable conditions for its use. Any HEIs can contact these HEIs for getting/using resources. This will reduce the undue financial burden on HEIs who want to use it for a short duration and give financial benefit to HEIs those are having such resources. The main focus of this problem statement is to:

1. To create a platform for the HEIs to update their shareable resource details
2. Aspirant HEIs can submit their requisition for desired resources Recommendation system must be designed for the aspirant HEIs for easy search and use the resource effectively for their growth in the lab session, research, and product development, etc."

# OUR GOALS

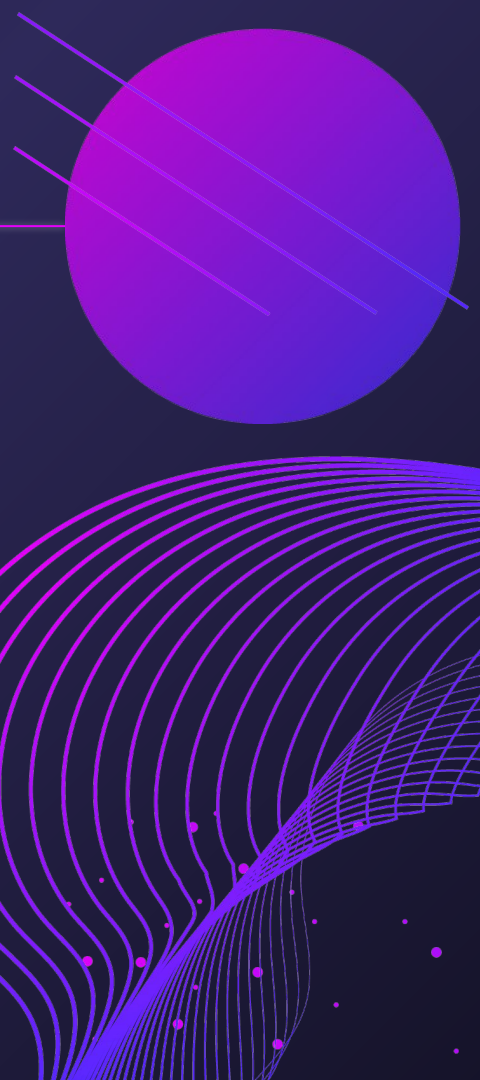
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- To create a **Centralised** portal for the HEI's for easy and secure way of resource sharing.
- Develop a **Recommendation System** for optimizing the resource sharing process.
- Write an algorithm to **Schedule** the resource sharing in best possible way.
- **Digital Contracts** for fair use of resource.
- Including a **Feedback system** to ensure our portal is filled with quality resources and institutes .
- Perform **Sentiment Analysis** on the feedbacks to process the reviewed data.
- Grading institutes on the basis of previous reviews.
- Develop an **Admin Panel** for UGC to monitor and manage HEI's.

# OUR APPROACH

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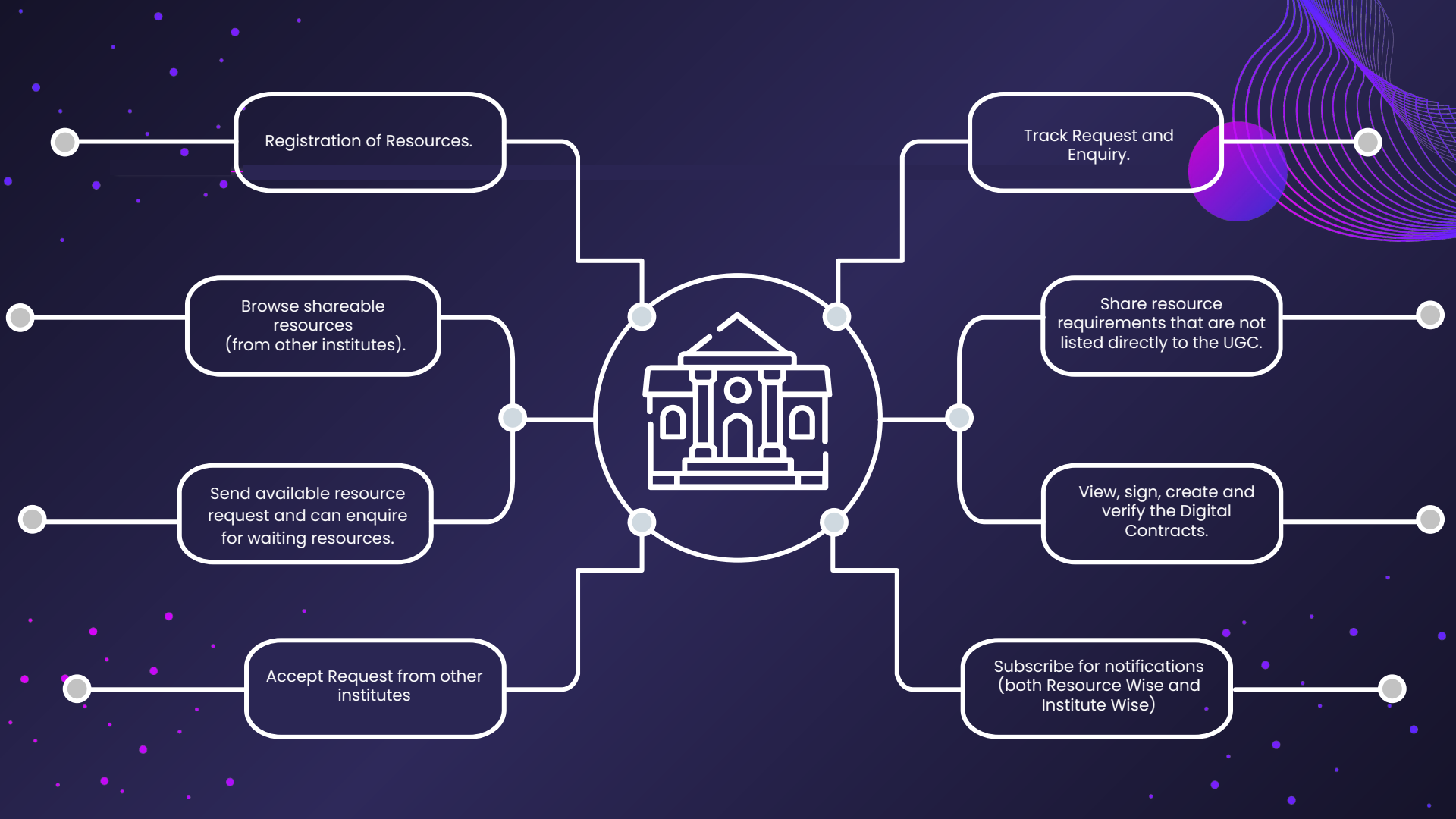
- We created a platform that allows easy sharing of various resources among HEIs.
- An HEI can lend help to an aspirant institute according to their requirements.
- An HEI can upload a list of resources that they can provide to other institutes and aspirant institutes can choose resources as per their requirements.
- We categorized resources as : Virtual Resources, physical Resources and research-based resources. And we have also introduced the concept of Faculty Assistance Program.
- We implemented various features to ensure maximum utilization of resources in a fair and secured way.





# **Institute Life Cycle**







# KEY FEATURES

01

## Digital Contracts

An e-contract is created and signed electronically. It enables Real-time collaboration which allows users to contribute to the proposal simultaneously.

02

## Sentimental Analysis

Sentimental Analysis is done so that on the basis of feedback by the institutes, the reputation points of are changed accordingly. So fairness is assured

03

## Scheduling Algorithm

Scheduling algorithm sorts the resource requests in such a way that the majority of the institute's requirements are met.

04

## Faculty Assistance

Faculty from one institute giving lectures to another institute on a temporary basis in response to a request from an aspirant institute.

05

## Recommendation System

It recommends the most suitable resource based on Institute's requirements.

06

## Signature Verification Model

Signature Verification is done to ensure that signature is correct and matching.

# KEY FEATURES

07

## Email Notification

An email would be sent to both the institutes at major stages of resource sharing.

08

## Admin Panel for U.G.C

An admin panel for UGC to monitor and manage HEI's. and to analyse the resource sharing.

09

## \*Access Security

As virtual resources will be shared among multiple entities we have added another security layer to stop unethical plagiarism and sharing of resources.

10

## \*Discount offers on granted resource

As UGC readily offers grants to certain institution for various resources those resources when shared should be made available with certain discounted price.

11

## \*Aadhar Integration

For faculty assistance program we have taken into consideration Aadhar Verification.

12

## \*Payment Gateway

We have used UPI to facilitate money transaction on our portal.



# 01



## **DIGITAL CONTRACTS**

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# Digital Contracts





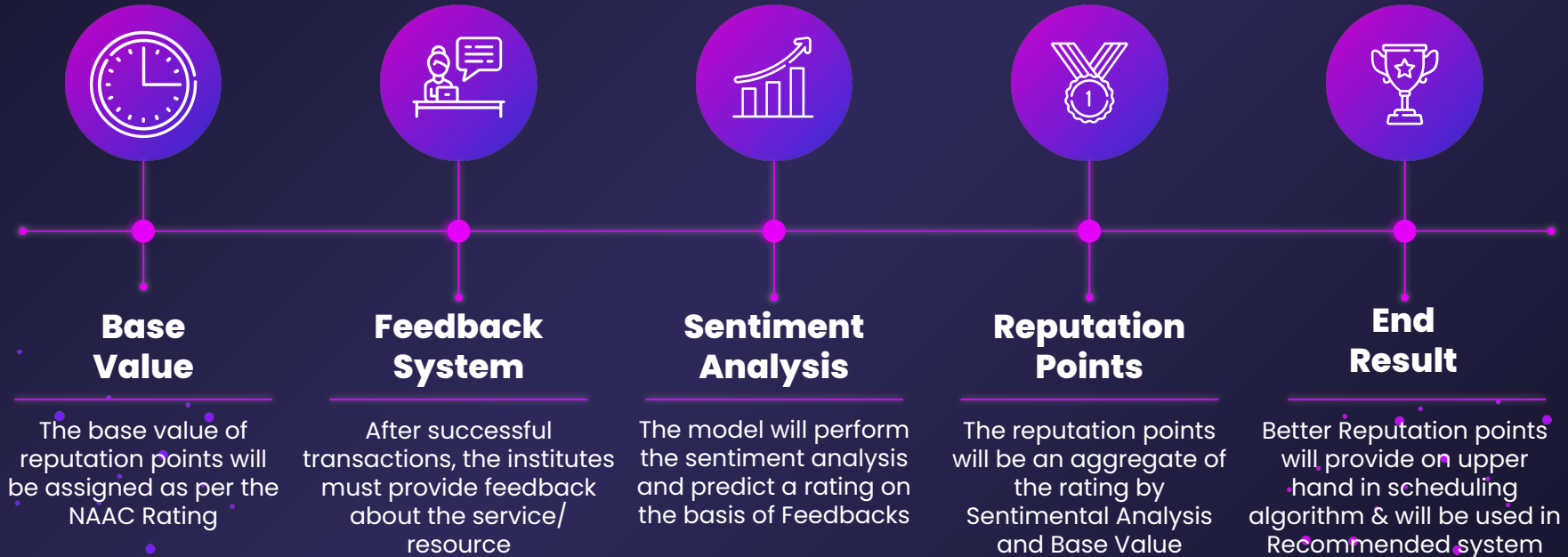
# 02

## **SENTIMENT ANALYSIS**

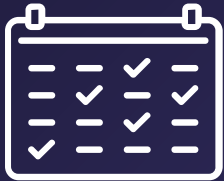
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# Sentimental Analysis



# 03



## **SCHEDULING ALGORITHM**

# Scheduling Algorithm

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## Sort

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We will first sort the requests according to the contract end date.



## Optimize

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We will optimize sorted results to the most feasible requests that can be fulfilled.



## Present

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We present all the feasible requests and put rest of the requests in the waiting list.





# 04

## **FACULTY ASSISTANCE**

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# Faculty Assistance

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# 05



## RECOMMENDATION SYSTEM

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# Recommendation System

## Budget

The dataset will contain information about the tier of institute used to compute the average budget and will aid in making recommendations accordingly.



## Location

When it comes to physically share resources, the aspect of proximity will aid the resource that is nearest to you to get priority over the one that is farther away.



## Availability

The AI Model assesses whether or not the recommended resource is available; if it is not, it will not appear in the recommendations.



# 06

## **SIGNATURE VERIFICATION MODEL**

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# Signature Verification Model



## Conversion

Take the query image and convert it to grayscale.



## Region Detection

Now Initialize the ORB detector and detect the key points in the query image and scene.



## Similarity

Compute the descriptors belonging to both images.



## Bruteforcing

Match the key points using Brute Force Matcher.



## Verification

Show the matched images.



# 07



## EMAIL NOTIFICATION

# Email Notification

We added email notification functionality:

- It allows institutes to subscribe to the updates of other institutes.
- Institutes will be able to get latest information about availability of resources.



# 08

## ADMIN PANEL FOR U.G.C

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View and edit the list of  
Shared Resources.

Authority to check and  
allow the sharing of  
resources.

Add, manage and  
remove the Institutes.

# UGC Admin Panel

View and collect overall  
data, and make analytics.

Ensure that institutions are  
using the resource in  
ethical and right way.

Verify the contracts  
between the institutes.

# 09



## ACCESS SECURITY

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# Access Security



We have categorized the virtual resources into 2 sections:

One which can be accessed in a browser or any viewer and another for external softwares

To address the first one we are using tokenization for the URL and for the another we are using email access







# 10

**DISCOUNT OFFERS ON  
GRANTED RESOURCE**


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# Research

University Name	Research Resource	Tenure	Allocation (Rs. in Crores)	Grant released (Rs. in Crores)
Anna University	Environmental Sciences	2010-2015	5.0	4.50
Annamalai University	Advanced Study in Marine Biology in the faculty of Marine Sciences	2011-2016	3.85	3.85
Bharathidasan University Tiruchirappalli	National Centre for Alternatives to Animal Experiments	2016-2021	5.0	2.46

\*The above data has been taken from **UGC Annual report 2020-2021 [1]**

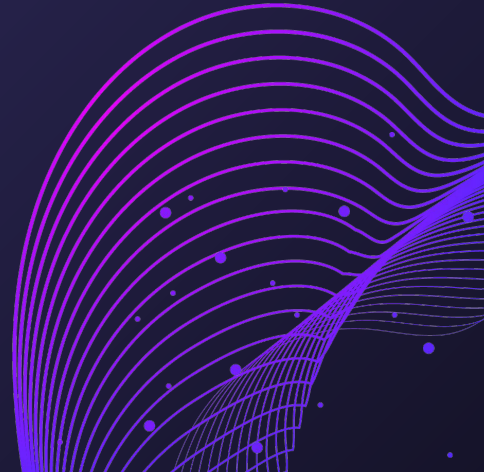


# 11



# AADHAR INTEGRATION

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# Aadhar Integration

We integrated Aadhar Authentication for verification of faculties in faculty assistance program.

There is a different web page for faculty signup and the verification will be done through Aadhar Card as it is accepted across the whole country.

Aadhaar is universal identity accepted across the whole country.



# 12

## PAYMENT GATEWAY

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# Payment Gateway (₹)

- As India is gradually transforming into cashless society, hence we kept online method of payment through **UPI** on our portal.
- We enhance online mode of payment because the transaction amounts are huge and needed to be done in a secure way.





The background is a dark purple gradient. In the top-left corner, there is a cluster of small, light purple dots of varying sizes. On the right side, there are large, flowing, wavy lines in a lighter shade of purple, creating a sense of movement. A thin horizontal line is positioned just below the word 'Case'.

# **Case Study**

# Case Study



## Delhi Technical University

Delhi University has decided to offer infrastructural facilities on rent to the varsity-affiliated colleges, other institutions and NGOs. ( Source : [NDTV-Article](#) )

### Rented Facilities

<b>University Stadium or Polo Ground</b>	₹ 10,000 – ₹ 3 lakh per day
<b>university's Conference Centre</b>	₹ 3,000 – ₹ 30,000 per day

The other infrastructural facilities available for rent include Academic Research Centre, Activity Centre, Shankar Lal Concert Hall, and Tagore Hall.



## Annamalai University

Annamalai University rents out its Centralised Instrumentation And Service Laboratory (CISL) to other universities and industries. ( Source : [Annamalai Website](#) )

### Rented Instruments

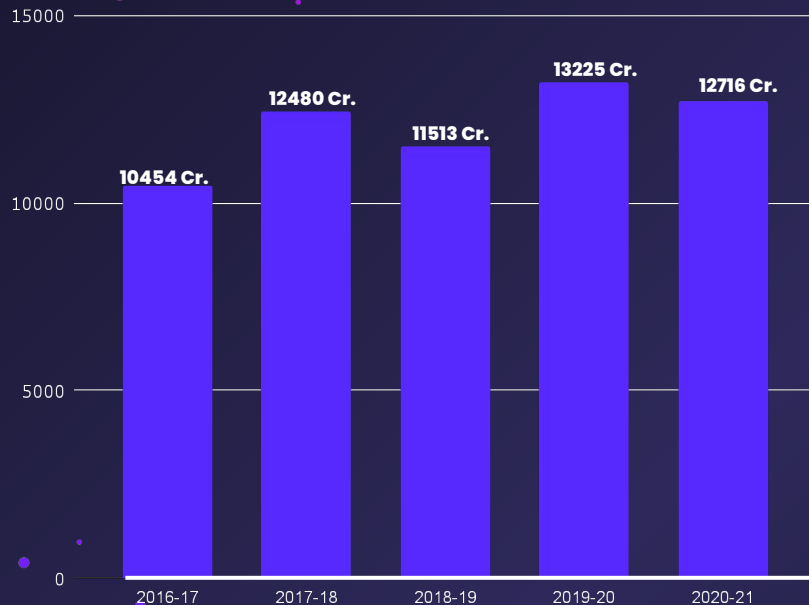
<b>Atomic Force Microscope (AFM)</b>	₹1,000 – ₹ 3,000 per day
<b>Simultaneous Thermal Analyzers (STA)</b>	₹250 – ₹750 per hour

The other instrumental facilities available for rent include SEM with EDS, STA, FACS, ICP-MS, Output-CD.



# **Financial Aspect**

# Analysis



UGC Progression of Total Expenditure

## Grants Received

Rs. In Crore during 2020-21

Budget Head	Grants Received
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General	₹ 13135 Crore
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Unspent (19 - 20)	₹ 494 Crore
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## Total

₹ 13629 Crore

# Probable reduction in grant costs



General Development assistance grant

₹ 839.24 Crores

Development of Sports Infrastructure & Equipment in  
Colleges

₹ 351.15 Crores

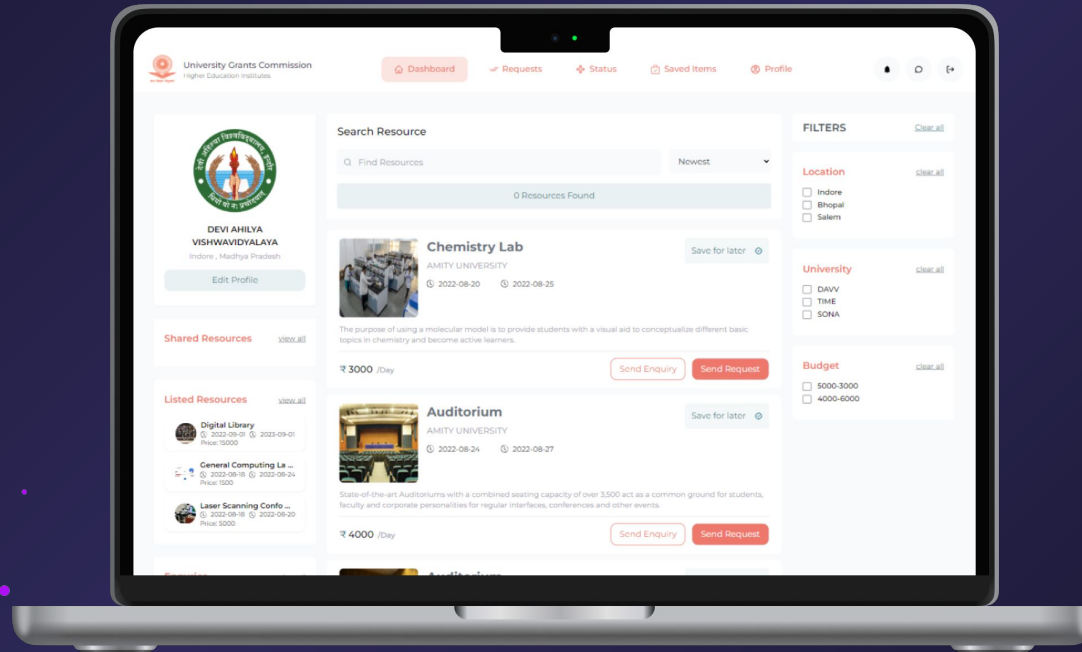
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₹ 1,190.39 Crores (total)

Using the centralised portal, we expect a reduction of 25-30% in grants costs provided by UGC.

\*The above data has been taken from UGC Annual report 2020-2021 [1]

# Our Portal





# Impacts

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## Financial

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Relieve financial burden from U.G.C and HEI's and use funds effectively



## Resources

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All shareable resources available on single platform



## Profits

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To utilize vacant resources efficiently with profit



## Education

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Improve standard of education & research for low tier institutes.



The background is a dark purple gradient. It features abstract decorative elements: on the left, a series of concentric, wavy purple lines that curve upwards and to the right, with a solid purple circle positioned above them; on the right, a similar set of wavy lines curves downwards and to the right, with a solid purple circle positioned above them. Scattered throughout the background are numerous small, light purple dots, resembling a starry night sky or a digital data field.

# Usecase Diagram

# Technology Stack

## Front End



## Back End



## Blockchain



## Database



# Our Team



## Team Members

Team Leader : Arnav Shrivastava  
Stream : ETC      Year: III

Team Member : Artika Shrivastava  
Stream : IT      Year: III

Team Member : Kunal Sangtani  
Stream : IT      Year: III

Team Member : Piyush Agrawal  
Stream : CS      Year: III


Team Member : Pratham Rasal  
Stream : CS      Year: III

Team Member : Shivang Mishra  
Stream : IT      Year: III

## Mentors

Team Mentor : Dr. Vaibhav Jain Sir  
Category : Academics  
Expertise : DSA/DBMS

Team Mentor : Mr. Neeraj Sharma Sir  
Category : Academics  
Expertise : ML/AI



# References

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- [1] Annual Report of the University Grants Commission for the year 2020-21

The background is a deep purple color. It features abstract, flowing, wavy lines in a lighter shade of purple, which appear to be composed of many thin, parallel lines. These lines curve and sweep across the frame, creating a sense of movement. Scattered throughout the background are numerous small, glowing dots in various shades of purple and blue, resembling a starry night sky or a digital data field.

**Thank  
You**