



Data Access Portal (DAP)

A Report Submitted for Partial Fulfilment of
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Project Based Learning

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CERTIFICATE

This is to certify that, report “Data Access Portal (DAP)” submitted by Nilanjan Paul(154), Sahil Patil(157), Sarthak Godbole(163), Aditya Gupta(155) and Sujal Mandape(147) of First Year Engineering Programme, is bonafide work completed in partial fulfilment of Course **Project Based Learning**.

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SYNOPSIS

Data access portal

Data access portal provides a platform where we can retrieve vital data using cloud architecture in different fields and provide data based services.

Using this portal we can provide valuable information and resources to medical network.

The medical network will be comprised of hospitals, trauma centers, ambulances, blood and organ banks.

This will drastically improve the current efficiency of our medical field and will help in saving lives.

It can even provide crucial preventive and essential instruction in ambulance to medical staff in exigency.

Using this portal, we can link numerous medical centers and dispense vital resources during times of adversities.

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Introduction

'Emergency' is a term which can never be predicted, it could be today, tomorrow, next week, or God knows when. Emergency situations need to be resolved as quickly as possible without a single minute of delay. Medical emergencies are one such example where every second, every minute is important, a delay in treatment may cost a patient's life. Organ Transplant, urgent blood requirement are some of the critical situations where a donor and receiver need to meet certain parameters for the treatment to be conducted. But there might be 1000s of donors and receivers. How will you find the perfect match for the patient? You need not worry because we have developed a solution to that. DAP[Data Access Portal], a product brought to by the group SSSKAN from F Division. I, Sujal Mandape(147) would like to introduce you to our team starting with Nilanjan Paul(154), Sahil Patil(157), Sarthak Godbole(163), Aditya Gupta(155).

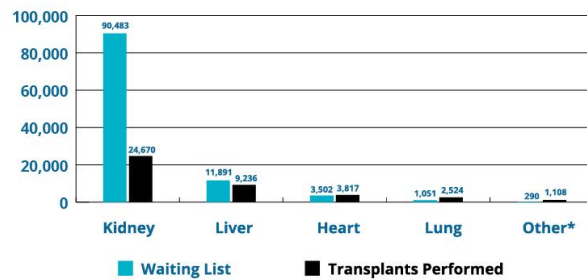
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Literature Review

17 people die of lack of [organ donor](#).

Patients on the Waiting List vs. Transplants Performed

By Organ in 2021



*Other includes allograft transplants like face, hands, and abdominal wall.

Many people have been dying either due to lack of availability or because the organs did not reach on time for the patient. The reason behind it is that the process starts after the patient reaches the hospital, the doctors analyze the patient, make calls to other hospitals for the availability, do the procedure and then the process of delivery starts.

Now what we are trying to do is provide a way to the medical emergency staffs so that they can

1. Communicate the required details to the hospital about the patient
2. For the hospital to make the necessary arrangements before the arrival of the patient

How is that going to be possible?

Imagine a situation where the ambulance has got a call about a patient but they don't know what exactly is the medical condition. However the ambulance is equipped with first-aid. Here if there is an AI that can detect conditions like maybe an organ failure, or blood loss which is not visible with bare eyes, the system can recommend the required procedures to the hospital and the medical staff.

The hospital on the other hand can already be ready with the required medical equipment and a team and with a quick cross check they are good to go. Moreover the portal will be connected to a database (accessible to only authorised personnel) with a collection of datas like the blood group, allergies, medical history, insurance and wills fetched from the Government Databases like aadhar to facilitate this service.

This will thus help reduce the time and paperwork before the

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Design And Development

The DAP is designed to provide a platform for the emergency service staff to provide, collect and facilitate effective communication in the least amount of time possible. To achieve this we decided to create a web application so that it's independent of the system thus reducing code complexity and minimizing the chances of application failures.

First, we began with the website. but setting up the environment before that was the most difficult part. When we first installed Django, it had overlapped with our older libraries present so we had to restart buy making a virtual environment

Building a website and implementing features like CIA from scratch are time consuming and error prone so to be on the safer side we started with the python framework named Django which supports features like built-in Admin UI, protection against security threats like clickjacking, XSS, etc. with ORM support which made it the ideal framework for our purpose.

After building the front-end, it was time for the backend. We had to keep in mind the to deploy a system with maximum uptime and reliability. Using our systems for serving as the backend would be non-ideal. So we shifted to the cloud.

The idea was to use a kubernetes pod on a cloud VM Instance to host the website and the SQL servers so as to keep them running and make sure the servers were healthy. But this was straining the instance as we were using a micro server on google cloud to be cost effective. Simply using an instance with more power would be what we need but that won't be cost effective so we decided to hire a service to host our SQL server providing a pay-as-you-go service.

Our first choice was to use the Google cloud Cloud SQL. But again the prices made us change our mind and we shifted to supabase prosql. Initially we thought we have to refactor our whole code to adjust the prosql but supabase got us covered.

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Conclusion

The convergence of technology with medical science has saved and helped many in the past. We strive to make our dreams come through so that more lives can be saved, and more effectively.

References

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