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# BeegBrain

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## Abstract

BeegBrain is a multi-tenant information system capable of receiving and visualizing electroencephalograms (EEG) files from distinct proveniences. Its main focus is to provide intuitive tools for doctors to manage, visualize and write reports about a brain exam in a web environment app. This project aims to improve collaboration between medical institutions since data-sharing and remote diagnosis is a hard and time-consuming process where the exams can be lost. Therefore, our web application provides a contract between a medical institution where the exams are made (medical providence) by operators and a medical revision center where the exams are analyzed by doctors.

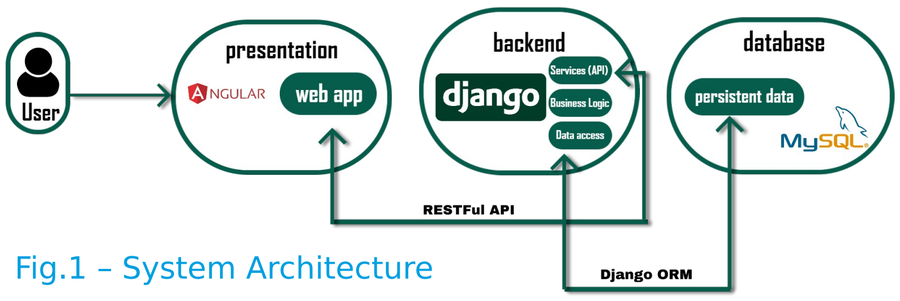


Fig.1 – System Architecture

## Functionalities

A set of tele-EEG as-a-service functionalities that can run in the cloud. It allows to set up of distinct use cases like centralized tele-reporting or regional management system for multi-domain EEG examinations. The client operator can upload the exams to the platform through a web or shared folder and the doctors are able to access incoming from distinct proveniences, where the authorization is managed by a roled-based access system. Operators can see the reports produced by doctors and manage the workflow, including anomalous situations like examinations with errors. Doctors are able to manage service work lists (Fig. 2) and review the incoming EEGs, visualizing the exam (Fig. 3) and reporting it in real-time with various tools (Fig. 4).

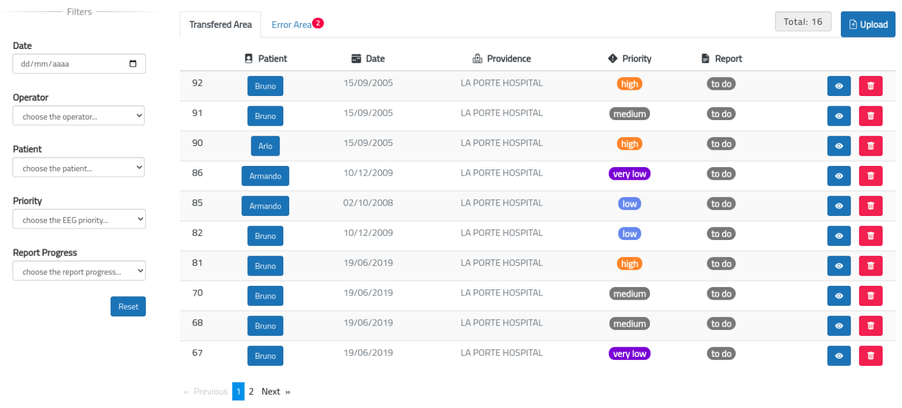


Fig. 2 – Workspace

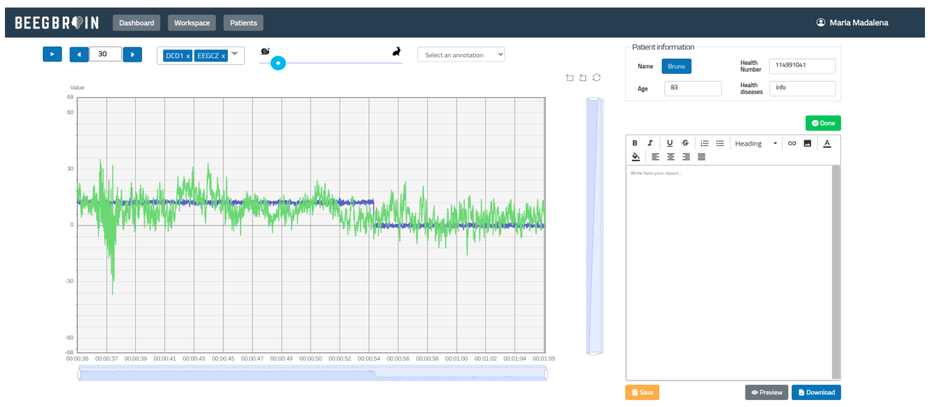


Fig.3 – EEG viewer

## Viewer Functionalities

- Select multiple channels to plot signals;
- Pause/resume and change the speed of the signal;
- View annotations about a specific point;
- Writing the report while viewing the signal;
- Generate a PDF of the report;

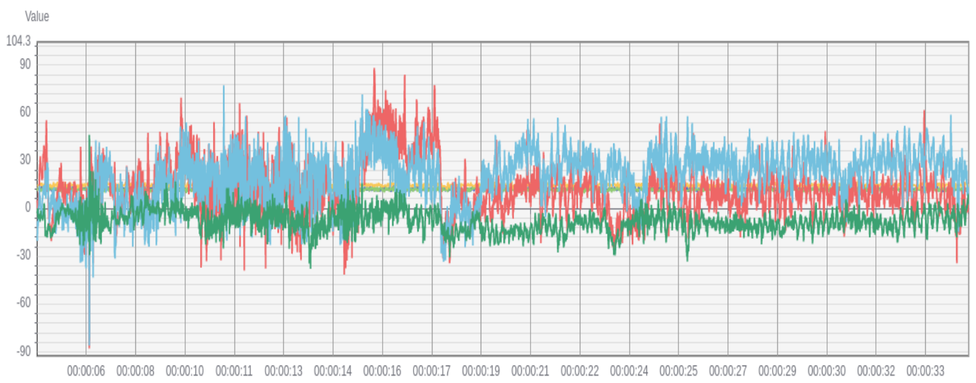


Fig 4- EEG plot

## Results

Our platform gives support to doctors and operators in the EEG field. Allowing them to have a workspace with all the information they need to do their work in the best way: patient's information and past exams, a good, efficient and intuitive viewer for plotting the signals, statistics of their use in the platform, generating reports, and much more.

## Conclusion

With this work, we believe that this project could become a precious tool in improving health professionals' productivity towards contributing to the world of medicine, focusing in the electroencephalogram health area. Its simplicity allows an easy and intuitive way to manage, monitor, analyse and generate reports on EEG exams, all in a simple web platform. It could even integrate some AI to detect patterns on anomalies and automatically identify some diseases.

BEEGBRAIN

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