eyecademy

Construction Waste Portal

Our client is a construction start-up, Mudataco, who were developing an application to allow construction companies to accurately forecast waste production and cost on projects. The application was designed to provide construction companies with information on waste management suppliers to easily compare service capabilities and rates

Client Need

Mudataco had identified a need for construction companies to be able to accurately predict the amount and type of waste being produced by any construction project. With over 30 years' experience in the construction sector they recognised that under-budgeting for waste was a major issue in any project where the margins were being squeezed by regulations and a weak economy. In addition, they wanted to use this prediction to drive an on marketplace where waste service companies could access construction companies without the need of a third-party broker to bid for the work directly – based on the prediction of waste being produced.

Mudataco came to us with a 'seed' database of historical construction data that they have been provided with voluntarily by a number of large construction companies who had been convinced that this was a game-changing idea for their industry. This data contained information about the size of the construction project, the amount of waste produced by the project on completion, and the type of waste.

Client

Mudataco

Industry

Construction

Service Offering

Software Development
Data Engineering
Data Modelling
Statistical Modelling
Predictive Analysis
Agile Project Management

Technology

Django
Python
Azure DevOps
Azure SQL Database
JavaScript

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Why Eyecademy?

Mudataco required a company with a multi-skilled team. Software developers to build the web-based application, data engineers to model the data for the application and data scientists to build the statistical model that would underpin the application itself. Eyecademy has a track record of combining software with data science with our innovative HR system 'seeHR'. seeHr was designed to predict flight risks by using the company's own HR data over time and building a data science based predictive engine within the tool. Our track record in providing data expertise with software development made us the best candidate.

Solution

Using Agile project management, Eyecademy worked closely with the client to create the user stories for the application and worked in 2/3-week sprints across 5 months to build the online application. Using Azure DevOps as the central hub of the development team and utilising continuous development techniques we build the application structure using Django/Python – a mature and secure development framework that was designed for rapid development. We used Azure SQL Database to ingest the seed data, Python to build the statistical model and JavaScript libraries to create a presentation layer that would provide a powerful graphical interface for the construction company users.

We combined this with a subscription service that would allow construction and waste management companies to sign up. Fees were charged for sign up and the payment system was baked into the application using APIs provided by the online payment provider Stripe.

During each sprint the data scientists refined the model and tested predictions against a cut of the 'seed' data to validate the predictions. In addition, the application would allow construction companies to import the results of the construction project to graph how closely the prediction match the actual waste and type generated.

Each prediction had a 'green' element by encouraging construction companies to be as efficient as possible when interacting with and engaging the successful waste management company within the online marketplace. To do this, the application provided a best and worst practice split. In turn, the more a waste management company met compliance standards and qualifications the higher their 'star' rating in the marketplace.

Results

We worked closely with Mudataco up to and beyond the launch date to ensure that the launch ran as smoothly as possible.
The end results of the project were:

- The successful launch of an innovative online application and marketplace that uses software development, data engineering and data science in a unique way

- An application that is unique in its ability to use data from multiple construction companies to allow more accurate budgeting, potentially saving the construction industry millions of pounds

- A disruptive application that has been well received by many players in the construction and waste industry. Its focus on good practice and the rewarding of waste management companies for compliance has been praised by Zero Waste Scotland who are now working closely with Mudataco