

About our client

The mission of our customer solution is to usher in a greener future by offering comprehensive carbon emission plans to their customers. Committed to environmental responsibility, our customers specialize in empowering homeowners with tailored solutions to reduce their carbon footprint.

Scope

The project's scope involves the development of an application that is designed to assist homeowners, landlords, and tenants in enhancing the carbon emissions profile of their properties. Customers will receive complimentary retrofit plans customized to their property.

The system uses an AI model to generate retrofit plans by analyzing customer data and considering various parameters such as weather conditions, climate, solar irradiance, etc.

The users also have the option to subscribe to a premium service, providing access to assessors and contractors dedicated to improving carbon emissions.

These assessors and contractors are integral parts of the system and utilize a dedicated application for their tasks. Additionally, lenders are incorporated into the system, facilitating customer requests for loans while also playing a role in onboarding potential users.

The problem

Carbon emissions are a significant contributor to environmental degradation. Homes, as vital components of this challenge, often contribute to carbon footprints through inefficient energy usage and outdated infrastructure. Common problems associated with carbon emissions include increased energy costs, environmental degradation, and health concerns. Inefficient heating, ventilation, and air conditioning (HVAC) systems, poor insulation, and outdated appliances are among the leading culprits.

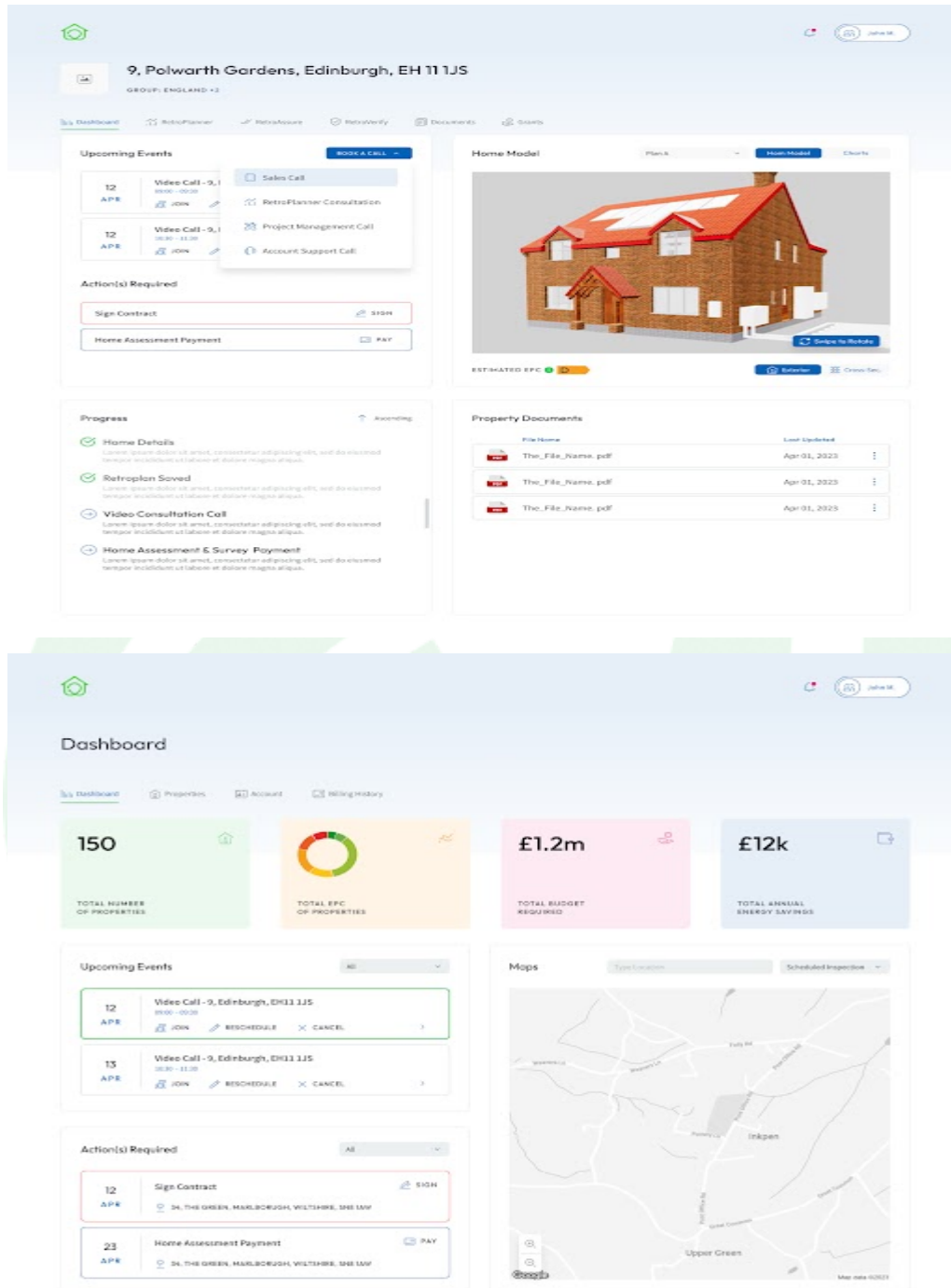
Solution

AMT's solution involves the generation of retrofit plans aimed at reducing carbon emissions for user-selected buildings. Users simply input the postcode, and the system, leveraging an AI model developed by AMT, identifies the property and generates the necessary carbon emission plans, termed retrofit plans. The AI model considers various parameters such as building age, construction type, wall insulation, floor data, building materials, energy utilization data, etc. This wealth of information, derived from the UK government sites and analyzing data from 20 million properties, enables the AI to predict and generate tailored plans.

Additionally, the AI is fed with climate data, weather data, flood data, solar irradiance data, etc., providing a comprehensive understanding of the property's geo-location and natural

factors affecting carbon emissions. This data, spanning from 1950 to 2023 and updated monthly, ensures the AI model's accuracy in correlating information and generating effective plans.

This extensive dataset also establishes the groundwork for subcontractors, creating bidding opportunities based on the identified work paths.



The screenshot displays the AMT software interface for a property at 9, Polwarth Gardens, Edinburgh, EH 11 1JS. The interface is divided into several sections:

- Upcoming Events:** A list of events including Video Call - 9, 11:00 - 11:30, Retro-Planner Consultation, Project Management Call, and Account Support Call. A modal window for 'Book a Call' is open, showing options for Sales Call, Retro-Planner Consultation, Project Management Call, and Account Support Call.
- Home Model:** A 3D rendering of a two-story brick house with a red roof. Below the model, there is an 'ESTIMATED EPC' bar chart and buttons for 'Return' and 'Create Plan'.
- Progress:** A section showing the progress of various tasks, including Home Details, Retro-plan Saved, Video Consultation Call, and Home Assessment & Survey Payment.
- Property Documents:** A table listing property documents with columns for File Name and Last Updated. The documents are 'The_File_Name.pdf' and 'The_File_Name.pdf', all updated on Apr 01, 2023.
- Dashboard:** A detailed dashboard showing key metrics:
 - Total Number of Properties:** 150
 - Total EPC of Properties:** A circular progress chart.
 - Total Budget Required:** £1.2m
 - Total Annual Energy Savings:** £12k
- Upcoming Events (Detailed):** A list of events with details for 'Video Call - 9, Edinburgh, EH11 1JS' on 12 APR and 13 APR, including options to JOIN, RESCHEDULE, or CANCEL.
- Action(s) Required:** A list of actions required, including 'Sign Contract' and 'Home Assessment Payment', with details for '24, THE GREEN, MARLBOROUGH, WILTSHIRE, MK45 1WY'.
- Maps:** A map showing the location of the property, with a 'Type Location' button and a 'Scheduled Inspection' button.

Results

Through cutting-edge software and expertise, we will be providing detailed plans that not only enhance energy efficiency but also contribute to a more sustainable and eco-friendly living environment.

Technologies used

Front End - ReactJS

Back End - NestJS, Python

Database - MongoDB

AI Prediction Model - Python, Random forest, Multi-output classifier