Internship project report

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Chapter 1

Intro

The main objective of this project is to design and implement a full-stack web application using the Django framework to develop the backend of the application with a Computerized Maintenance Management System (CMMS) (see Chapter 2) for efficient content management, and to integrate elements of Augmented Reality. This is while adhering to the Model-View-Template (MVT) pattern of Django, thus ensuring a clear separation between business logic, presentation, and data.

Chapter 2

What is CMMS ?

CMMS (Computerized Maintenance Management System) is a intuitive tool for maintenance management through software, allowing the management of various maintenance tasks for equipment within an organization (company, municipality, administration, etc.).

A CMMS software, designed for various sectors including industry, services, and public institutions, aims to support maintenance services in their daily tasks, in line with new technologies (mobility and traceability applications).

What are Maintenance Management Systems?

Maintenance Management Systems are powerful tools for optimizing maintenance operations, reducing unplanned downtime, extending equipment lifespan, and maximizing asset availability. They are widely used across various sectors including manufacturing, industry, utilities, healthcare, and more.

What is the django framework?

The Django framework is a set of tools and libraries written in Python, designed to facilitate and accelerate the development of web applications.

Django follows the MTV (Model-Template-View) design pattern, where the "template" represents the view. It includes an Object-Relational Mapping (ORM) to interact with the database, a URL management system, a templating system for data presentation, automatic administration to manage site content, and much more.

Example of using a CMMS with django

Using a CMMS (Computerized Maintenance Management System) with Django involves creating a custom web application for maintenance management. Here's how it might work:

- Models:

Define Django models to represent the main entities of your CMMS system, such as equipment, maintenance interventions, technicians, spare parts, etc. Each model will correspond to a table in the database, and each field in the model will represent a column in that table. For example, an Equipment model could contain fields such as name, description, date_installation, etc.

- Views :

Write Django views to manage interactions between the user and the data in the CMMS system. These views will be responsible for retrieving the necessary data from the database, manipulating it if necessary, and then presenting it to the user via HTML templates. For example, one view could be used to display the list of equipment, another to create a work order, and so on.

- Templates:

Create HTML templates to provide a user-friendly, responsive interface. These templates will contain the HTML code required to display the data retrieved by the views, as well as forms to allow users to submit new data. For example, a template could be used to display a list of equipment with links to details of each piece of equipment and options to create new work orders.

- URLs and Routing:

Configure application URLs to map different views to corresponding URLs. For example, a /equipments/ URL could be configured to display the equipment list, a /workorders/create/ URL to create a work order, etc.

- Database integration :

Configure Django to use the DBMS of your choice (PostgreSQL, MySQL, SQLite) and define the corresponding data models. Django supports the automatic

creation of database tables from the defined data models, making data persistence management much easier.