LED Installer App

1. Introduction

The **LED Installer App** is a web-based platform designed to streamline configuring and managing LED screen installations. The application allows users to enter project data, select equipment, view a diagram of the screen-chosen model, and generate a downloadable PDF for their installation configuration. The app interacts with a backend API to retrieve screen equipment data and presents this information through an intuitive user interface built with React and Ant Design.

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2. Purpose

The purpose of the LED Installer App is to facilitate the planning and configuration of LED screen installations by providing an easy-to-use interface. The application serves the following primary functions:

- **Project Configuration**: This allows users to input project details, such as the project title, designer name, and department.
- **Equipment Selection**: Provides a list of available screen manufacturers (MFR) to choose from.
- **Diagram Visualization**: Displays a diagram of the selected screen with dimensions, aiding users in understanding the screen's size and fitting requirements.
- **PDF Export**: Generates a PDF document containing the project details and configuration for easy sharing and record-keeping.

3. Technologies Used

The LED Installer App employs a range of modern technologies to ensure a robust, user-friendly experience.

Frontend:

- **React**: A JavaScript library for building user interfaces.
- **Ant Design**: A UI component library for React, used for building the app's responsive layout and UI elements.
- **Axios**: A promise-based HTTP client for making requests to the backend API.
- **HTML5 Canvas**: Used to draw and display screen diagrams.

Backend:

- **Node.js with Express**: The backend server that serves equipment data through a REST API.

PDF Export:

- Custom utility functions for generating downloadable PDF documents.

4. Installation Instructions

Prerequisites

Ensure that the following are installed on your machine:

- **Node.js** (LTS version recommended)
- **npm** (Node Package Manager)

Steps to Install the Application

1. Clone the Repository

Clone the project repository to your local machine using the following command:

bash
Copy code
```
git clone https://github.com/RahulShah6501/LED-installer-app.git
```

2. Set Up the Backend

Navigate to the backend folder and install the necessary dependencies:

```
cd backend
npm install
```

Start the backend server:

```
npm start
```

The backend will be available at http://localhost:5000, providing the necessary data for the front end.

3. Set Up the Frontend

Navigate to the frontend directory and install the dependencies:

```
cd frontend
npm install
```

Start the frontend application:

```
npm start
```
The frontend will be available at http://localhost:3000

5. Application Architecture

Frontend:

The front end is built using React and Ant Design. The key components of the frontend include:

- **Dashboard**: The main interface where users configure project details and view equipment information.
- **DrawingCanvas**: A component that renders a diagram of the selected screen based on its dimensions.
- **ProjectForm**: A form for inputting project details, including project title, designer name, department, and screen manufacturer.
- **EquipmentPage**: A page that lists all available equipment, retrieved from the backend.

Backend:

The backend is built with Node.js and Express, serving a RESTful API endpoint to fetch equipment data.

- **GET /equipment**: Retrieves a list of available equipment (screen models, manufacturers, sizes, etc.).

6. Usage Guide

Navigating the Application

1. **Start the Application**: Open http://localhost:3000 in your web browser.
2. **Project Configuration**: The dashboard allows users to input the following project details:
    - **Project Title**
    - **Designer Name**
    - **Department**
    - **Screen Manufacturer**
    - **Date**
3. **Selecting Equipment**:
    - Choose a screen manufacturer from the dropdown list. This fetches and displays available screen models.
    - Once a screen model is selected, a diagram of the screen is displayed on the canvas, showing its dimensions.
4. **PDF Export**:
    - After configuring the project, users can click the **Download PDF** button to generate a PDF document with the project configuration.

7. API Documentation

The backend exposes the following REST API endpoint to retrieve equipment data:

GET /equipment

Description: Retrieves all available equipment data including screen models, sizes, and manufacturers.

Example Request:

GET http://localhost:5000/equipment

Example Response:

json


```
[
  {
    "Screen MFR": "Samsung",
    "Screen Size": "55",
    "Height": "100",
    "Width": "150",
    "Depth": "30"
  },
  {
    "Screen MFR": "LG",
    "Screen Size": "65",
    "Height": "110",
    "Width": "160",
    "Depth": "35"
  }
]
```

8. Features

- **Project Configuration**: Input project details and manage project settings.
- **Screen Equipment Selection**: Browse and select from a list of available screen manufacturers.
- **Diagram Visualization**: View a visual representation of the selected screen with its dimensions.
- **PDF Export**: Download the project configuration as a PDF file.

9. Contributing

We welcome contributions to improve the LED Installer App. If you'd like to contribute, please follow these steps:

1. Fork the repository.
2. Create a new branch for your feature or bugfix.
3. Make your changes and commit them.
4. Push your changes and create a pull request.

10. License

This project is licensed under the **MIT License**.

11. Conclusion

The LED Installer App is a robust and user-friendly platform designed to simplify the configuration and installation of LED screens. By leveraging modern web technologies like React and Node.js, the app enables users to easily configure their projects, visualize the selected equipment, and export project details into a PDF document.