

# AgroSmart - React + Vite Project Structure

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## Project Structure

```
agro-smart/
├── public/
│   ├── vite.svg
│   └── favicon.ico
├── src/
│   ├── components/
│   │   ├── common/
│   │   │   ├── Header.jsx
│   │   │   ├── Sidebar.jsx
│   │   │   ├── StatsCard.jsx
│   │   │   ├── LoadingSpinner.jsx
│   │   │   └── Modal.jsx
│   │   ├── dashboard/
│   │   │   ├── DashboardView.jsx
│   │   │   ├── WeatherWidget.jsx
│   │   │   ├── InsightsPanel.jsx
│   │   │   └── SensorStatus.jsx
│   │   ├── farms/
│   │   │   ├── FarmsView.jsx
│   │   │   ├── FarmCard.jsx
│   │   │   ├── FarmForm.jsx
│   │   │   └── FarmDetails.jsx
│   │   ├── crops/
│   │   │   ├── CropsView.jsx
│   │   │   ├── CropTable.jsx
│   │   │   ├── CropForm.jsx
│   │   │   └── CropDetails.jsx
│   │   ├── sensors/
│   │   │   ├── SensorsView.jsx
│   │   │   ├── SensorCard.jsx
│   │   │   ├── SensorChart.jsx
│   │   │   └── SensorForm.jsx
│   │   └── weather/
```

```
| | | └─ WeatherView.jsx
| | | └─ WeatherCard.jsx
| | | └─ WeatherChart.jsx
| | └─ schedule/
| | | └─ ScheduleView.jsx
| | | └─ ScheduleCalendar.jsx
| | | └─ ScheduleForm.jsx
| | └─ insights/
| | | └─ InsightsView.jsx
| | | └─ InsightCard.jsx
| | | └─ InsightFilters.jsx
| | └─ users/
| | | └─ UsersView.jsx
| | | └─ UserCard.jsx
| | | └─ UserForm.jsx
| └─ hooks/
| | └─ useFarms.js
| | └─ useCrops.js
| | └─ useSensors.js
| | └─ useWeather.js
| | └─ useAuth.js
| └─ services/
| | └─ api.js
| | └─ farmService.js
| | └─ cropService.js
| | └─ sensorService.js
| | └─ weatherService.js
| └─ utils/
| | └─ constants.js
| | └─ helpers.js
| | └─ formatters.js
| | └─ validators.js
| └─ contexts/
| | └─ AuthContext.jsx
| | └─ AppContext.jsx
| └─ styles/
| | └─ globals.css
| | └─ components.css
| └─ assets/
| | └─ icons/
| | └─ images/
```

```
|   └─ data/
|   └─ ┌─ sampleData.js
|   └─ App.jsx
|   └─ main.jsx
|   └─ index.css
└─ .gitignore
└─ package.json
└─ vite.config.js
└─ tailwind.config.js
└─ postcss.config.js
└─ README.md
```

## Configuration Files

### package.json

```
{
  "name": "agro-smart",
  "private": true,
  "version": "0.0.0",
  "type": "module",
  "scripts": {
    "dev": "vite",
    "build": "vite build",
    "lint": "eslint . --ext js,jsx --report-unused-disable-directives --n",
    "preview": "vite preview"
  },
  "dependencies": {
    "react": "^18.2.0",
    "react-dom": "^18.2.0",
    "lucide-react": "^0.263.1",
    "recharts": "^2.8.0",
    "react-router-dom": "^6.15.0",
    "axios": "^1.5.0",
    "date-fns": "^2.30.0"
  },
  "devDependencies": {
    "@types/react": "^18.2.15",
    "@types/react-dom": "^18.2.7",
    "@vitejs/plugin-react": "^4.0.3",
    "autoprefixer": "^10.4.14",
```

```

    "eslint": "^8.45.0",
    "eslint-plugin-react": "^7.32.2",
    "eslint-plugin-react-hooks": "^4.6.0",
    "eslint-plugin-react-refresh": "^0.4.3",
    "postcss": "^8.4.27",
    "tailwindcss": "^3.3.3",
    "vite": "^4.4.5"
  }
}

```

## vite.config.js

```

import { defineConfig } from 'vite'
import react from '@vitejs/plugin-react'

export default defineConfig({
  plugins: [react()],
  resolve: {
    alias: {
      '@': '/src',
    },
  },
  server: {
    port: 3000,
    host: true,
  },
})

```

## tailwind.config.js

```

/** @type {import('tailwindcss').Config} */
export default {
  content: [
    './index.html',
    './src/**/*.{js,ts,jsx,tsx}',
  ],
  theme: {
    extend: {
      colors: {
        primary: {
          50: '#f0fdf4',

```

```
    100: '#dcfce7',
    200: '#bbf7d0',
    300: '#86efac',
    400: '#4ade80',
    500: '#22c55e',
    600: '#16a34a',
    700: '#15803d',
    800: '#166534',
    900: '#14532d',
  },
},
fontFamily: {
  sans: ['Inter', 'sans-serif'],
},
},
},
plugins: [],
}
```

## postcss.config.js

```
export default {
  plugins: {
    tailwindcss: {},
    autoprefixer: {},
  },
}
```

## Installation Commands

```
# Create Vite project
npm create vite@latest agro-smart -- --template react
cd agro-smart

# Install dependencies
npm install

# Install additional packages
npm install lucide-react recharts react-router-dom axios date-fns
```

```
# Install Tailwind CSS
npm install -D tailwindcss postcss autoprefixer
npx tailwindcss init -p

# Start development server
npm run dev
```

## Key Files to Create

1. **Main App Component** - `src/App.jsx`
2. **Common Components** - Sidebar, Header, etc.
3. **View Components** - Dashboard, Farms, Crops, etc.
4. **Custom Hooks** - For API calls and state management
5. **Service Layer** - API communication
6. **Utility Functions** - Helpers and formatters
7. **Context Providers** - Global state management

## Development Workflow

1. **Start with** `src/App.jsx` as the main component
2. **Create common components** first (Sidebar, Header)
3. **Build view components** one by one
4. **Add API services** for backend integration
5. **Implement custom hooks** for data fetching
6. **Add routing** with React Router
7. **Style with Tailwind** for responsive design

## Responsive Design

- Mobile-first approach
- Breakpoints: sm (640px), md (768px), lg (1024px), xl (1280px)
- Collapsible sidebar for mobile
- Touch-friendly buttons and controls

## Security Considerations

- Input validation
- Authentication tokens

- API request sanitization
- Environment variables for sensitive data