

# RTSP Overlay App - Deliverables

## 1. Project Overview

The **RTSP Overlay App** allows users to play a live stream from an RTSP URL and add custom overlays such as text or images. Users can **drag, resize, edit, and delete overlays** on top of the video. All overlays are persisted via a backend API (Flask + MongoDB).

### Tech Stack:

- **Frontend:** React.js, Bootstrap 5
- **Backend:** Python (Flask)
- **Database:** MongoDB
- **Video Streaming:** HLS (converted from RTSP)
- **Additional Libraries:** Hls.js, Rnd.js for overlays

## 2. Features

### 1. Livestream Video

- Play RTSP livestream (converted to HLS).
- Standard video controls: play, pause, volume adjustment.

### 2. Overlay Management

- Add text or image overlays.
- Drag and resize overlays anywhere on the video.
- Edit overlay content inline.
- Delete overlays.

### 3. CRUD API for Overlays

- Create: Save new overlays with position, size, and content.
- Read: Retrieve existing overlays from MongoDB.
- Update: Modify overlay properties in real-time.
- Delete: Remove overlays permanently.

## 3. Folder Structure

```
rtsp-overlay-app/ | backend/ | app.py | routes.py |  
models.py | requirements.txt | frontend/ | src/ |  
Player.js | OverlayEditor.js | index.js | public/ |  
| index.html | package.json | README.md
```

## 4. API Documentation

Endpoint	Method	Request Body / Params	Description
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| /api/overlays | GET | — | Get all overlays || /api/overlays | POST |  
{ type, content, x, y, width, height } | Create a new overlay || /  
api/overlays/<id> | PUT | { type?, content?, x?, y?, width?,  
height? } | Update an existing overlay || /api/overlays/<id> | DELETE |  
— | Delete an overlay |

## 5. User Documentation

### Setup Backend

```
bash cd backend python -m venv venv source venv/bin/activate #  
Linux/Mac venv\Scripts\activate # Windows pip install -r  
requirements.txt python app.py - API runs at http://localhost:5000.
```

### Setup Frontend

```
bash cd frontend npm install npm start - React app runs at http://  
localhost:3000. - Connects to backend API for overlays.
```

### Using the App

1. **Input HLS/RTSP URL** in `Player.js` or `OverlayEditor.js`:  
`js const hlsUrl = "http://localhost:5000/hls/stream.m3u8";`
2. **Play livestream** using video controls.
3. **Add Overlay**:
  - Type text in the input box below the video.
  - Click **Add Overlay**.
4. **Edit Overlay**:
  - Drag, resize, or edit text directly on top of the video.
  - Changes are automatically saved to the backend.
5. **Delete Overlay**:
  - Click the **Delete** button on an overlay.

## 6. Notes

- The app works in modern browsers using `Hls.js` for HLS streams.
- Overlays are persisted in **MongoDB**.
- Responsive design handled via **Bootstrap 5**.
- Video height is set to **360px**, width scales to parent container.