

## JusticeWatch: Texas Police Accountability Platform - Technical Report

### Purpose and Motivation:

JusticeWatch is a civic engagement platform designed to visualize and track police brutality, related legislation, and department accountability across Texas. The project aims to increase transparency and public awareness of policing issues, ultimately contributing to improved accountability and policy reform. The platform serves as a comprehensive resource for citizens, activists, policymakers, and researchers to access and analyze data on police misconduct, legislative efforts, and departmental performance.

### Architecture and Technology Stack:

JusticeWatch employs a modern web architecture with a PostgreSQL database, Python backend with REST Framework for API development, and a React.js frontend. The system will use Mapbox GL JS for interactive mapping.

### Hosting:

The website is hosted on an AWS EC2 instance, with SSH access provided to team members via a shared SSH key. The server's IP address is currently configured to accept connections from any IP and port, which poses a security risk that should be addressed in the future. The website's static HTML files were generated using the `npm run build` command, and are served using PM2, a Node.js process manager, listening on port 3000. An Nginx reverse proxy is implemented to handle HTTPS traffic, utilizing Certbot for SSL certificate management. This proxy forwards all requests received on port 443 (HTTPS) to the PM2 server running on localhost:3000. DNS configuration for justicewatch.me is managed through Cloudflare, with an A record pointing to the EC2 instance's IP address.

### API Documentation:

The RESTful API provides endpoints for incidents, legislation, departments, and aggregated statistics. Key routes include:

- GET /api/legislation/
  - `curl --location 'https://justicewatch.me/api/legislation'`
  - `curl --location 'https://justicewatch.me/api/legislation/:id'`

Each endpoint supports filtering by ID, by search of location

### Models and Instances:

1. Police Misconduct Incidents (~13,000 instances): Captures details of incidents including date, location, victim information, and outcome.
2. Legislation Tracker (~8,000 instances): Tracks police reform bills, including status, sponsors, and topics covered.

3. Police Department Accountability Scorecards (1,000+ instances): Stores department performance metrics, funding information, and demographic data.

**Toolchain and Hosting:**

Development utilizes Git for version control, with Gitlab CI/CD. The application will be containerized using Docker and deployed on AWS for scalability.

**Challenges and Solutions:**

1. Data Integration: Combining data from disparate sources with varying formats posed a significant challenge. We developed key apis and databases to store all the information of legislation, violence and department information
2. Geospatial Visualization: Rendering thousands of incidents on a map caused performance issues. We will implement clustering and lazy loading techniques to enhance the map's responsiveness and user experience.