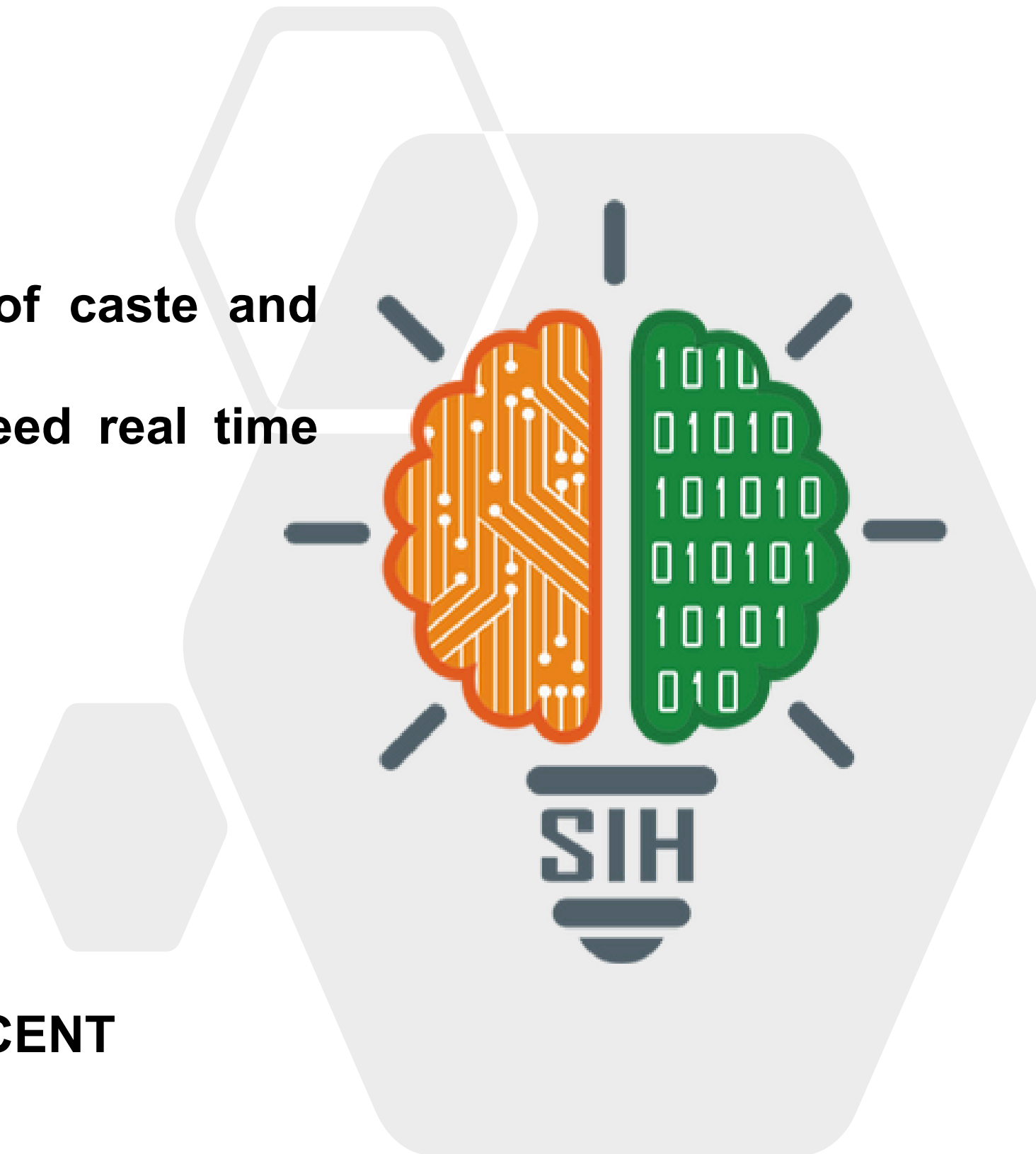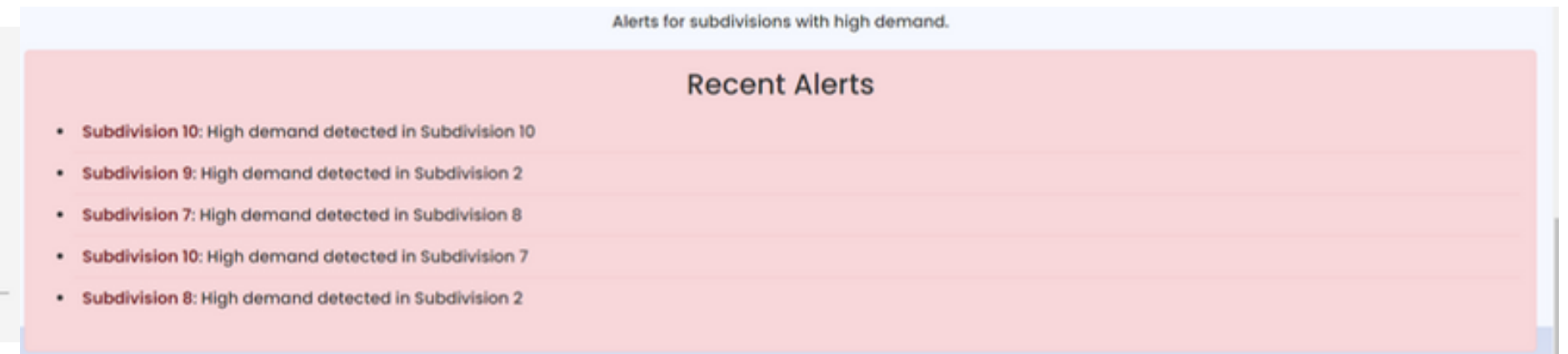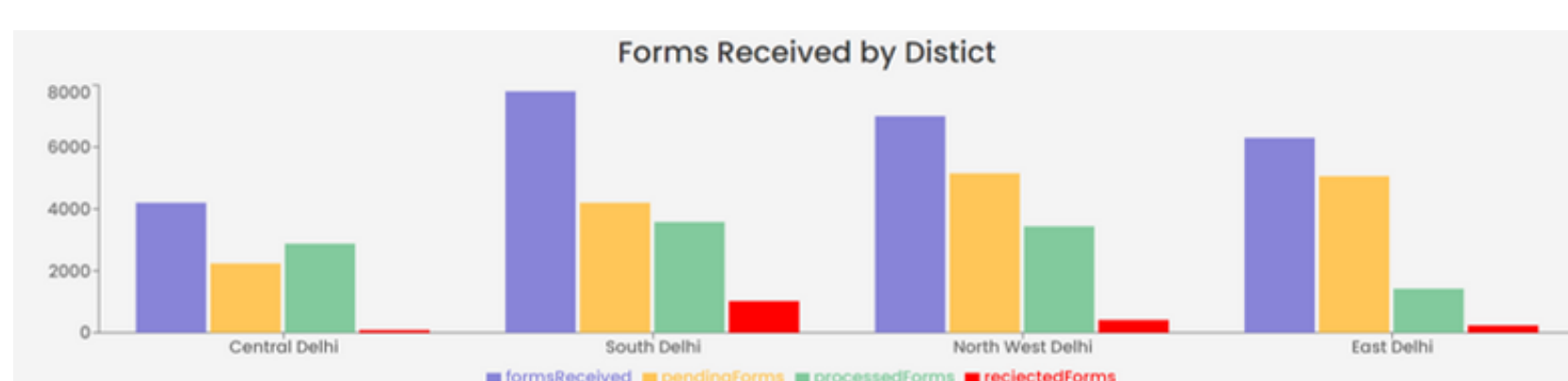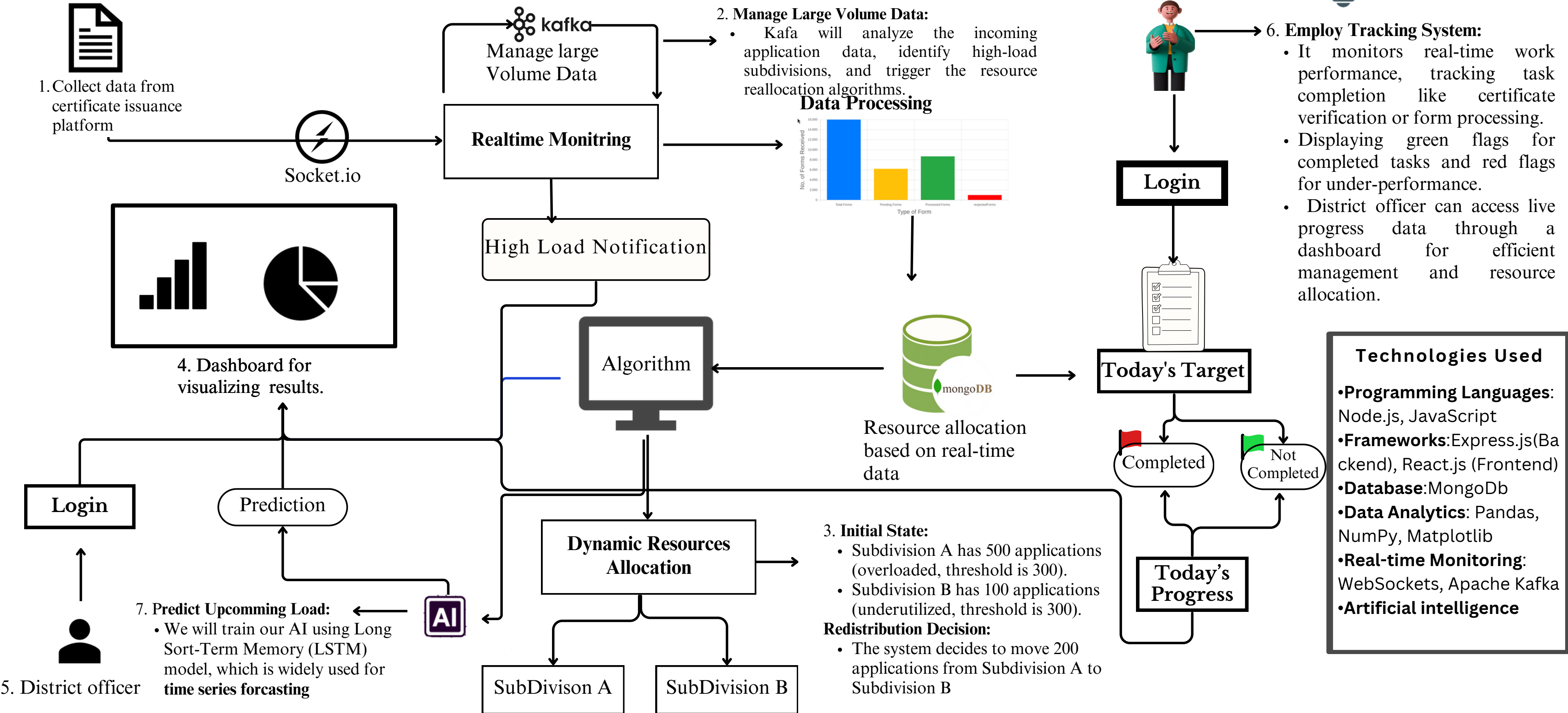- **Problem Statement ID –1622**

- **Problem Statement Title- Online issuance of caste and other certificates by revenue department need real time monitering.**

- **Theme- Smart automation**

- **PS Category- Software**

- **Team ID-**

- **Team Name (Registered on portal)- Team ASCENT**
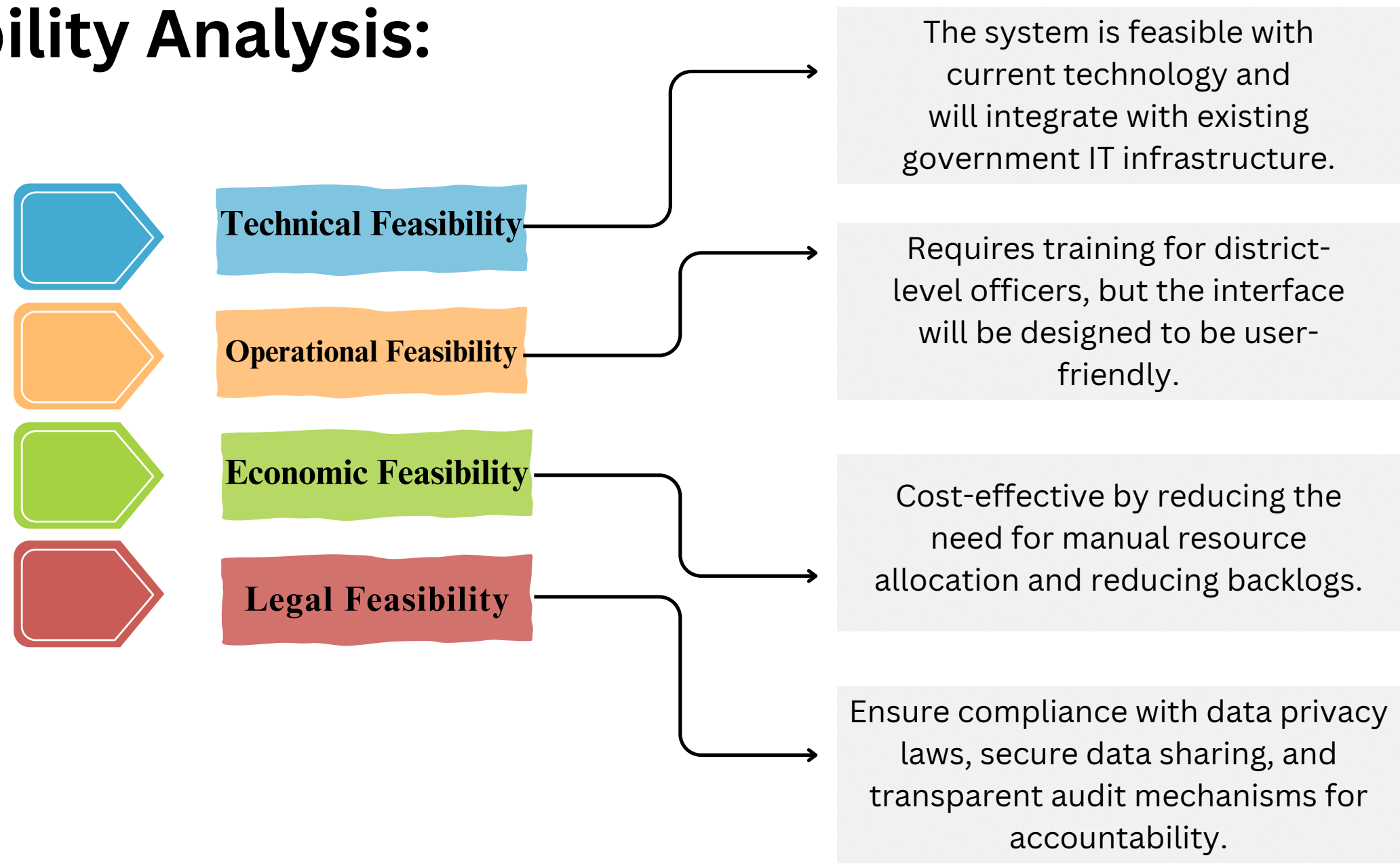
SevaSetu

Proposed Solution

- We will Develop a real-time monitoring system for the issuance of Caste and other certificates by the Revenue Department.
- The system will use data analytics to evaluate resource allocation and demand for certificates across various subdivisions.
- Implement dynamic resource allocation based on real-time data to reduce backlogs in high-demand subdivisions
- Real-time data collection on application load across subdivisions.
- Automated alerts for areas experiencing high application loads.
- Dynamic redistribution of resources to subdivisions with the highest demand.
- Centralized dashboard for district and central-level authorities to monitor and manage resources efficiently.
- Integrate AI for predicting the upcoming number of forms and assisting district officers in proactive employee allocation.
- We will also show statistics for the resources allocated using the real time monitering.

Forms Received by Distict

Alerts for subdivisions with high demand.

Recent Alerts

- Subdivision 10: High demand detected in Subdivision 10
- Subdivision 9: High demand detected in Subdivision 2
- Subdivision 7: High demand detected in Subdivision 8
- Subdivision 10: High demand detected in Subdivision 7
- Subdivision 8: High demand detected in Subdivision 2

TECHNICAL APPROACH

1. Collect data from certificate issuance platform

Socket.io

Manage large Volume Data

2. Manage Large Volume Data:
- Kafa will analyze the incoming application data, identify high-load subdivisions, and trigger the resource reallocation algorithms.

Realtime Monitring

Data Processing

High Load Notification

Algorithm

4. Dashboard for visualizing results.

Login

Prediction

7. Predict Upcomming Load:
- We will train our AI using Long Sort-Term Memory (LSTM) model, which is widely used for **time series forcasting**

5. District officer

Dynamic Resources Allocation

SubDivison A

SubDivision B

Resource allocation based on real-time data

3. Initial State:
- Subdivision A has 500 applications (overloaded, threshold is 300).
- Subdivision B has 100 applications (underutilized, threshold is 300).

Redistribution Decision:
- The system decides to move 200 applications from Subdivision A to Subdivision B

Login

Today's Target

Completed

Not Completed

Today's Progress

6. Employ Tracking System:
- It monitors real-time work performance, tracking task completion like certificate verification or form processing.
- Displaying green flags for completed tasks and red flags for under-performance.
- District officer can access live progress data through a dashboard for efficient management and resource allocation.

Technologies Used
- **Programming Languages**: Node.js, JavaScript
- **Frameworks**: Express.js(Backend), React.js (Frontend)
- **Database**: MongoDb
- **Data Analytics**: Pandas, NumPy, Matplotlib
- **Real-time Monitoring**: WebSockets, Apache Kafka
- **Artificial intelligence**

Explaination

Feasibility Analysis:

Technical Feasibility

Operational Feasibility

Economic Feasibility

Legal Feasibility

The system is feasible with current technology and will integrate with existing government IT infrastructure.

Requires training for district-level officers, but the interface will be designed to be user-friendly.

Cost-effective by reducing the need for manual resource allocation and reducing backlogs.

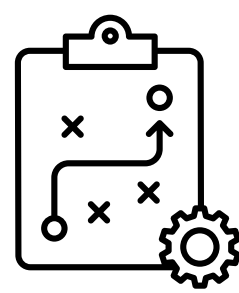Ensure compliance with data privacy laws, secure data sharing, and transparent audit mechanisms for accountability.
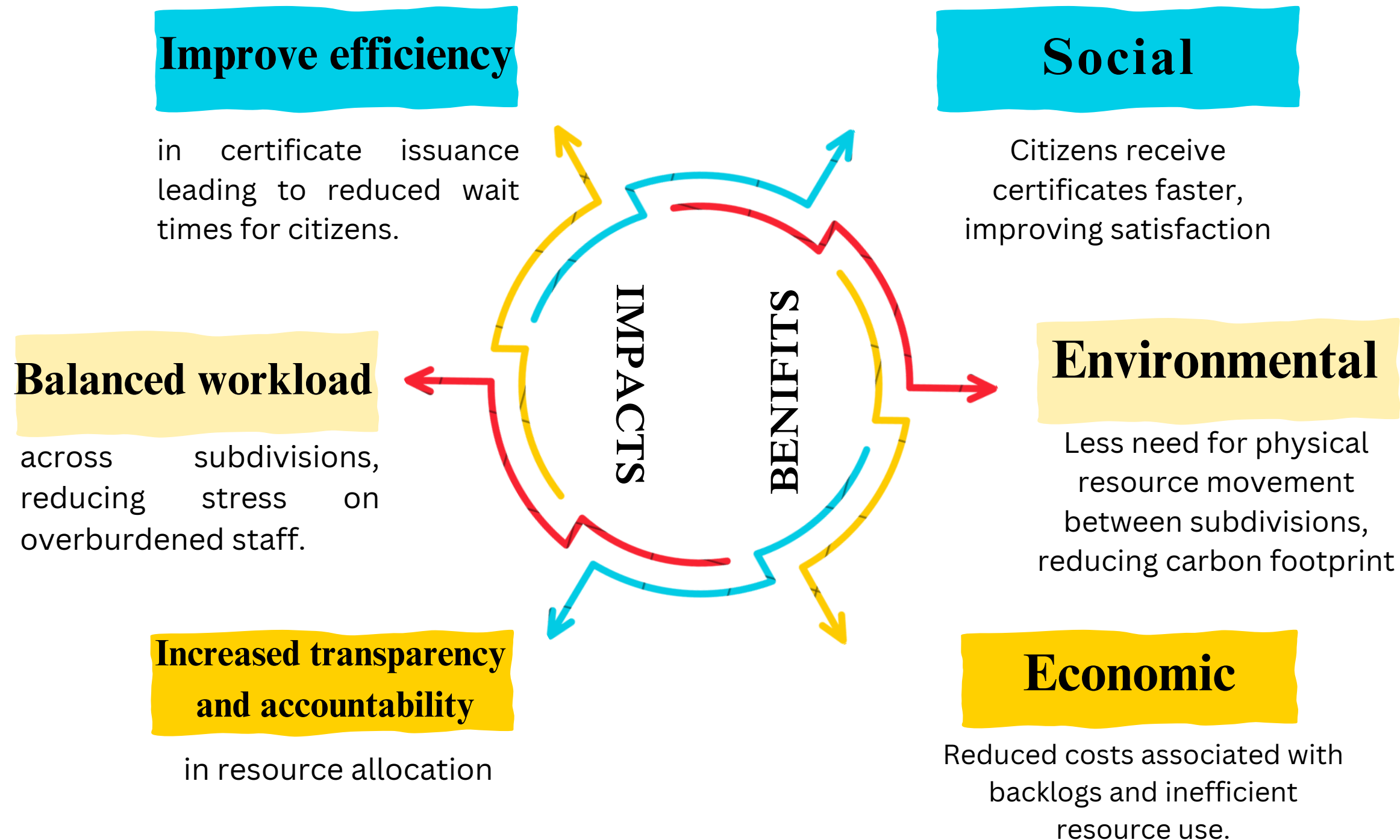
Challenges and Risks:

👉 **Data Privacy:** Ensuring sensitive information is protected.

👉 **System Integration:** Integrating with legacy systems

👉 **Adoption**: Training staff and ensuring adoption at all levels.

Strategies for Overcoming Challenges:

◆ Implement robust encryption and data security measures

◆ Use API-based integration for legacy systems

◆ Conduct training workshops and provide user support.

IMPACT AND BENEFITS

REVENUE MODEL

Improve efficiency

in certificate issuance leading to reduced wait times for citizens.

Social

Citizens receive certificates faster, improving satisfaction

Balanced workload

across subdivisions, reducing stress on overburdened staff.

IMPACTS

BENIFITS

Environmental

Less need for physical resource movement between subdivisions, reducing carbon footprint

Increased transparency and accountability

in resource allocation

Economic

Reduced costs associated with backlogs and inefficient resource use.

- **Government Subscription:** Charge annual or monthly fees for using the system.
- **Performance-Based Model:** Charge based on the cost savings or efficiency improvements.
- **Licensing Fees**: One-time licensing with yearly maintenance.
- **Public-Private Partnership:** Revenue sharing or government-backed funding.
- **Premium Analytics**: Offer advanced data insights as a paid add-on.
- **Integration Fees**: Charge for custom integration with legacy systems.

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Innovation and Uniqueness:

- Integration of predictive analytics to forecast demand trends.
- Real-time adjustment of resources rather than periodic manual adjustments.
- User-friendly interface for real-time monitoring and decision-making.

Research Sources:

- Government reports on certificate issuance.
- Case studies on real-time monitoring systems in government applications.
- Technical documentation on the technologies proposed.

References:

- Link to relevant government policy documents.
- Articles and papers on predictive analytics in resource allocation.

Tap below for video explaination and prototype

Explaination
Prototype link
Git repository