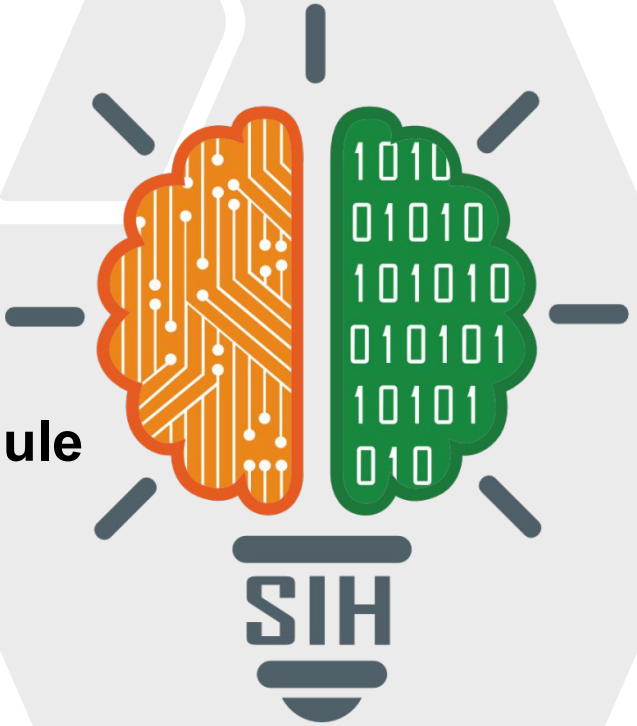
TITLE PAGE



- **Problem Statement ID – SIH25035**
- **Problem Statement Title-Sentiment analysis of comments received through E-consultation module**
- **Theme- Miscellaneous**
- **PS Category- Software**
- **Team ID-**
- **Team Name-Neutral Nexus**

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IDEA TITLE

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- **An AI system that analyzes text (like reviews or comments) to determine if the sentiment is positive, negative, or neutral. It automatically sends alerts when too much negative sentiment is detected.**

Key Features

- **Sentiment Analysis:** Classifies text into positive, negative, or neutral categories.
- **Automatic Alerts:** Notifies stakeholders when negative feedback exceeds a predefined limit.
- **Simple Web Interface:** Easy for anyone to use, even without technical skills.
- **Real-Time Results:** Provides instant analysis of the text entered.

What Makes It Unique?

- **Proactive Alerts:** Unlike typical tools, it doesn't just classify sentiment—it actively warns you about problems.
- **Customizable Triggers:** You can decide how much negative feedback is enough to trigger an alert.
- **Lightweight & Scalable:** Easy to deploy and can be expanded to handle large amounts of data from sources like social media.

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TECHNICAL APPROACH

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Technology Stack

- **Backend:** Python with Flask.
- **AI/NLP:** Scikit-learn or Hugging Face Transformers.
- **Frontend:** HTML, CSS, JavaScript, and Bootstrap.
- **Future Integrations:** Databases (SQL) and notification services (Email/SMS).

How It Works (Workflow)

1. **Input:** User enters text on a webpage.
2. **Processing:** The text is cleaned for analysis.
3. **Analysis:** An NLP model determines if the sentiment is positive, negative, or neutral.
4. **Action:**
    - If **negative**, an alert is triggered.
    - The result is displayed on the screen.

Prototype Summary

- A simple web form for text input.
- A backend that runs the analysis.
- Instant display of the sentiment result and an on-screen alert for negative feedback.

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FEASIBILITY AND VIABILITY

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Is the Idea Feasible?

Yes, it's highly feasible for four main reasons:

- **Technical:** Easy to build with standard open-source tools (Python, Flask, AI libraries).
- **Operational:** Simple for non-technical users to operate.
- **Economic:** Low cost due to free and open-source software.
- **Scalable:** Can be expanded from a small prototype to handle large amounts of data.

Potential Challenges and Their Solutions

- **Challenge:** Inaccurate sentiment analysis (e.g., sarcasm, slang).
  - **Solution:** Use more advanced AI models (like BERT) and improve text pre-processing.
- **Challenge:** Slow performance with large amounts of data.
  - **Solution:** Use lightweight models and optimize how data is handled.
- **Challenge:** Too many alerts causing "alert fatigue."
  - **Solution:** Let users customize alert sensitivity and send summary reports instead of individual alerts.
- **Challenge:** Difficulty connecting with other tools (e.g., email, customer support software).
  - **Solution:** Use a modular design with standard APIs for easy integration.
- **Challenge:** Data privacy and security concerns.
  - **Solution:** Anonymize user data and use secure connections (HTTPS).

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IMPACT AND BENEFITS

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Who It Helps (Target Audience)

- **Businesses:** Can quickly detect customer dissatisfaction, protect brand reputation, and improve services. 🏢
- **Customer Support Teams:** Helps prioritize urgent cases from unhappy customers for faster resolution. 🎧
- **Educational Institutions:** Can analyze student feedback to improve courses and teaching methods. 🎓
- **Social Media Managers:** Allows for tracking public opinion and online sentiment trends. 📊

Key Benefits

- **Economic:** Saves businesses money by preventing customer loss. It's also low-cost to build and run due to open-source technology. 💰
- **Operational:** Provides real-time insights, allowing for quicker, data-driven decisions. The system is scalable and adaptable for different needs. ⚙️
- **Social:** Improves communication by flagging issues faster and helps reduce online negativity by enabling proactive responses. 💬

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RESEARCH AND REFERENCES

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- Details / Links of the reference and research work
  -kaggle
  -open source projects