

TITLE PAGE

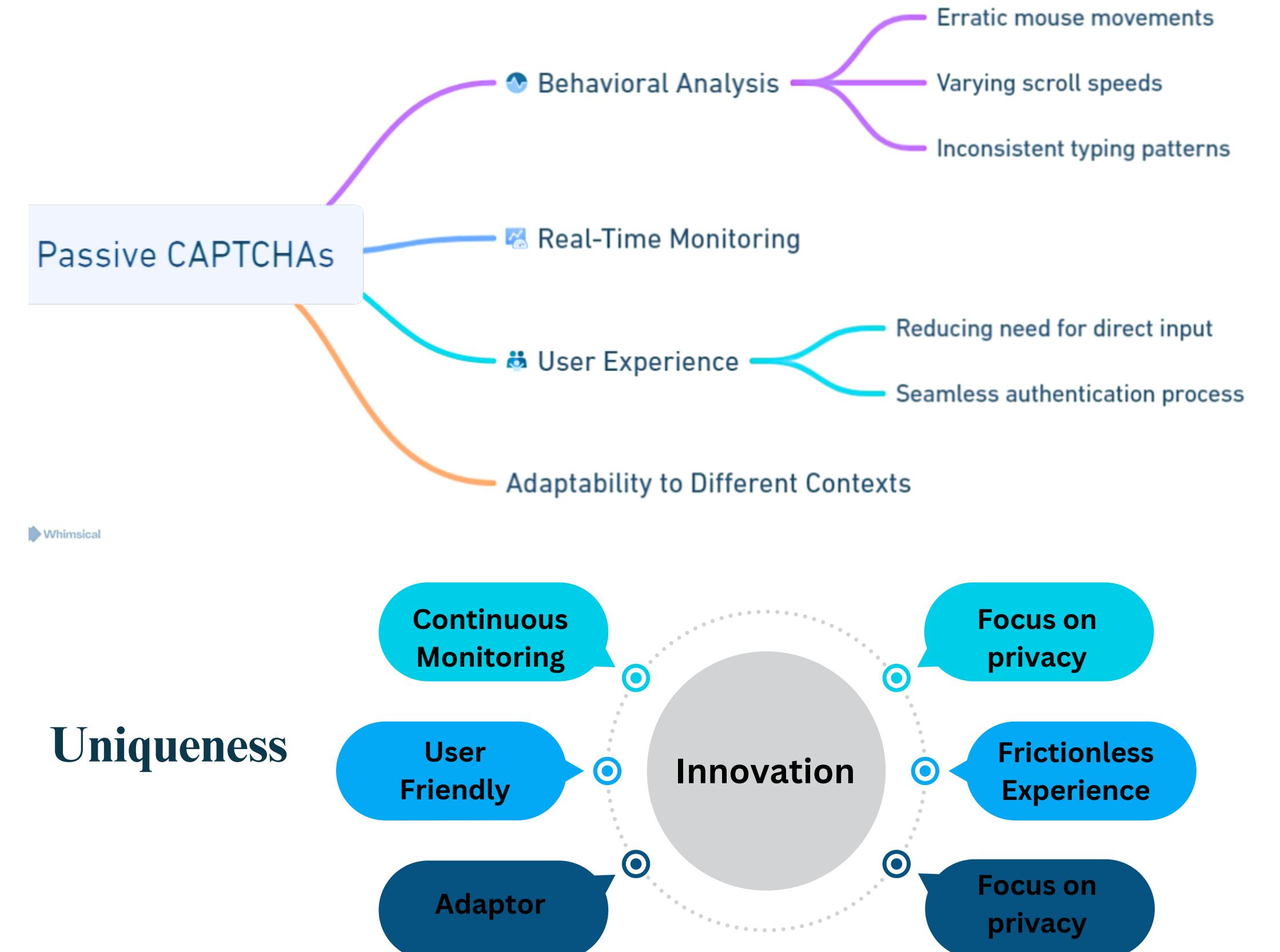
- Problem Statement ID – SIH1672
- Problem Statement Title- Develop a ML Model based solution to refine CAPTCHA.
- Theme- Smart Automation
- PS Category- Software
- Team ID-
- Team Name - Team Avinya

Proposed Solution

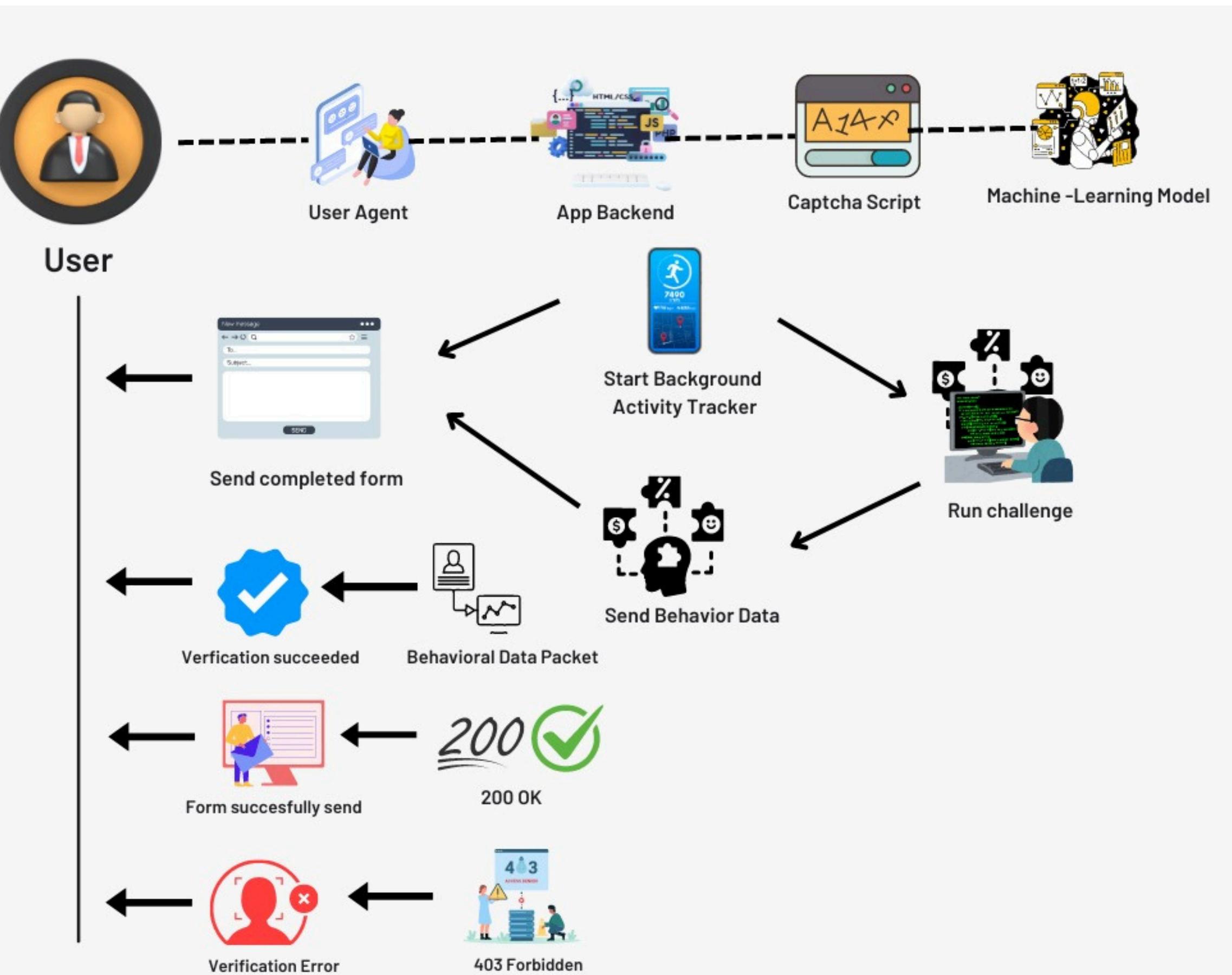
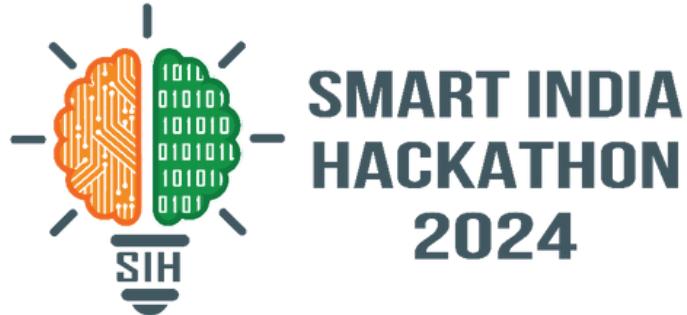
HUMAN VS. BOT DETECTION SOLUTION

- **Mouse Movements:** "Track random mouse paths to spot unnatural behavior."
- **Keystroke Dynamics:** "Analyze typing patterns to distinguish human typing."
- **Scroll Behavior:** "Detect irregular scrolling as a sign of human activity."
- **Browser and Device Information:** "Use device details to flag bot environments."
- **Touch Events:** "Measure touch actions to verify real user engagement."

How it addresses the problem



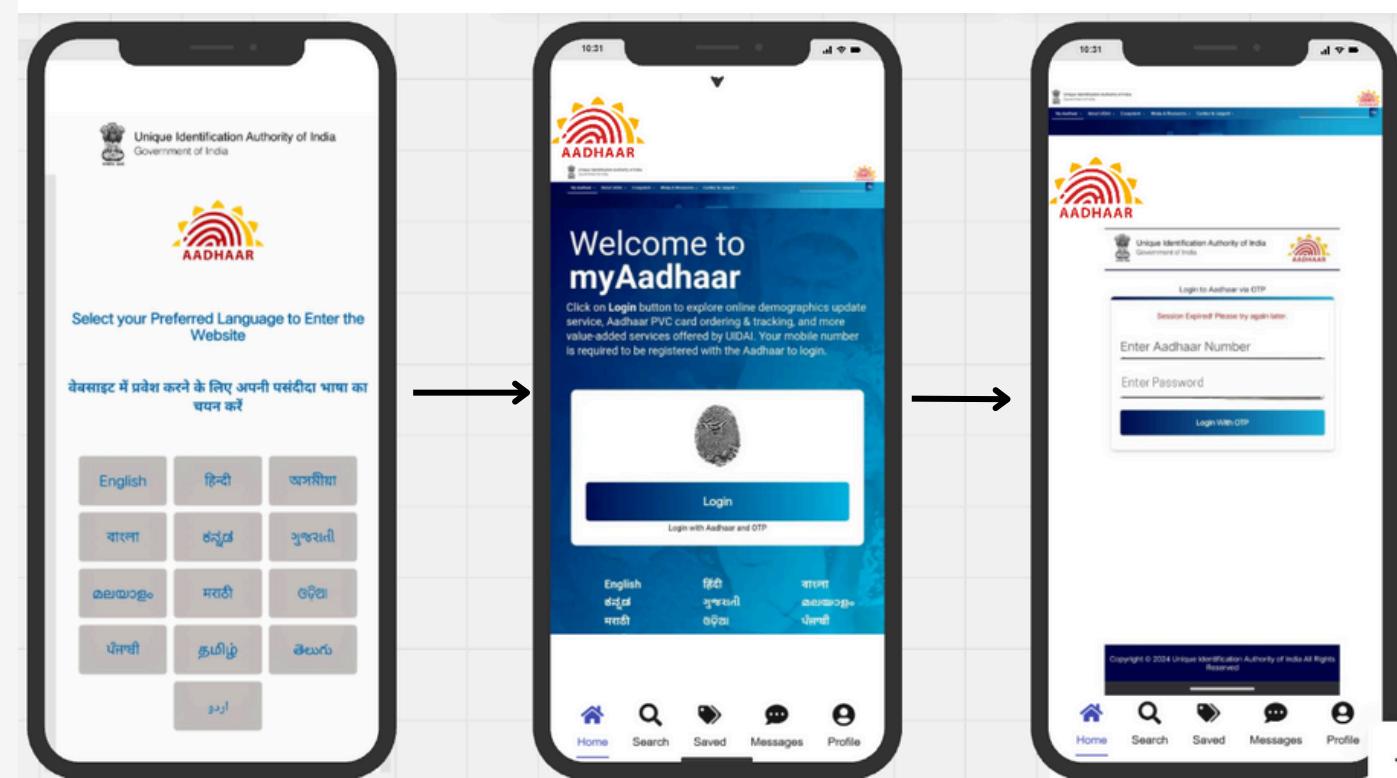
TECHNICAL APPROACH



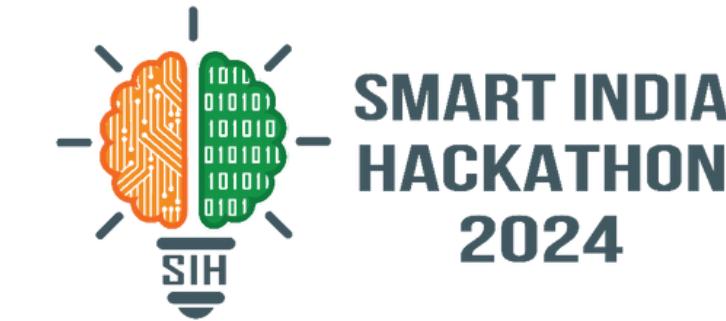
Technologies



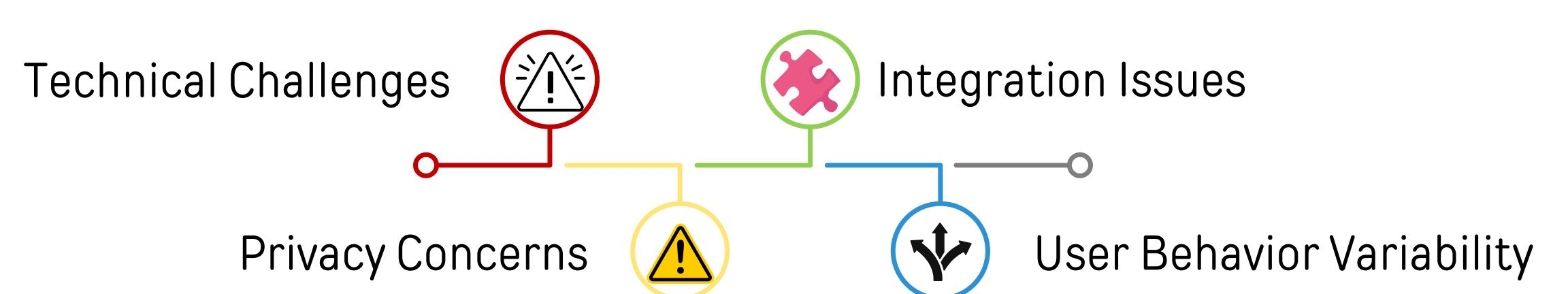
Wireframes



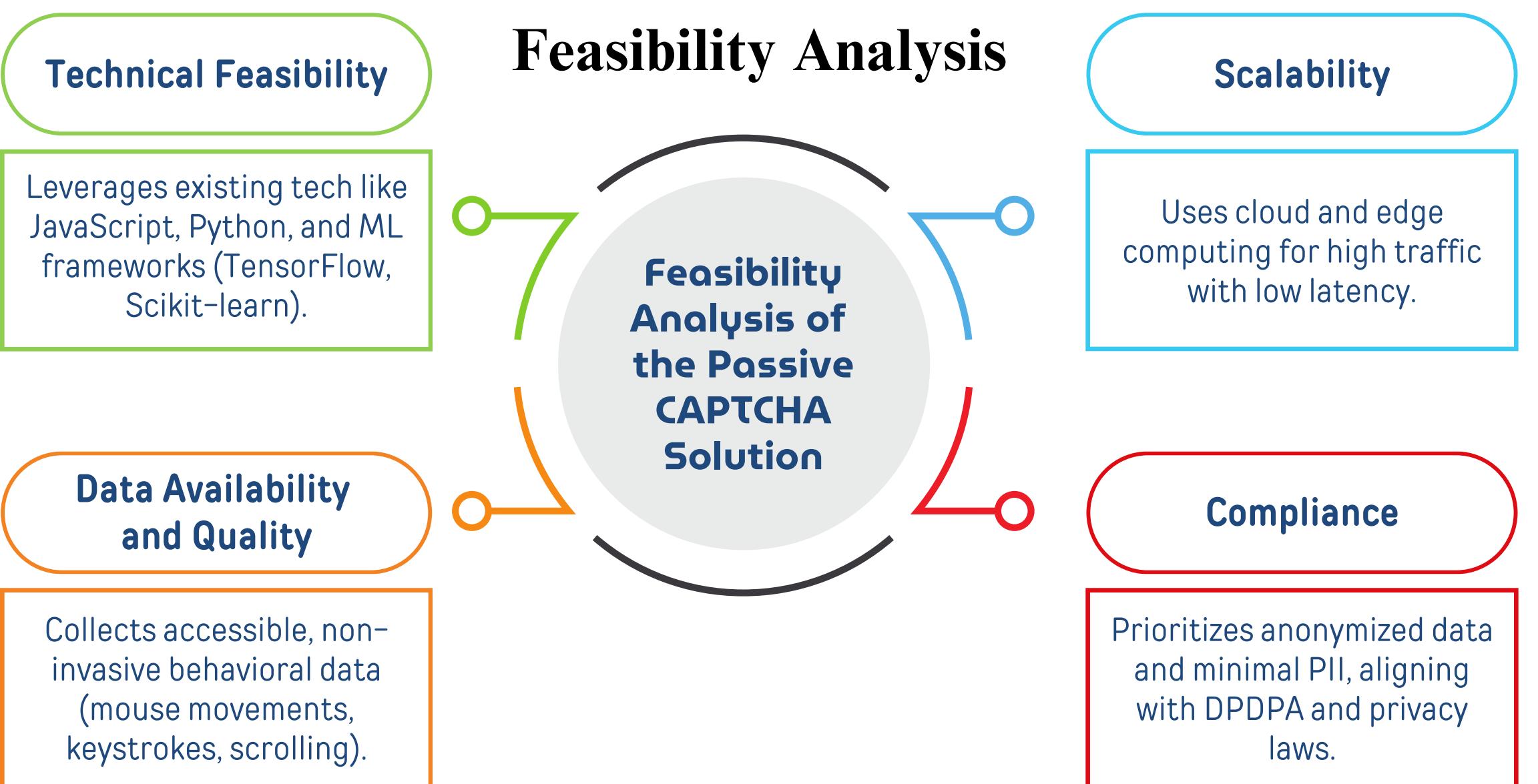
FEASIBILITY AND VIABILITY



Addressing Potential Challenges and Risks



Feasibility Analysis



Strategies for Overcoming Challenges

- 01 Technical Limitations:**
Optimize algorithms and use efficient coding practices to improve performance.
- 02 Data Quality:**
Implement rigorous data validation and cleaning processes to ensure high-quality inputs.
- 03 Privacy Concerns:**
Adopt privacy-by-design principles, minimizing data collection to only what's necessary.
- 04 User Experience:**
Conduct user testing to refine the solution and maintain a seamless, user-friendly experience.
- 05 Evolving Threats:**
Regularly update and retrain machine learning models to stay ahead of new bot tactics.

Impact And Benefits



BENEFITS

01



Social

Improved digital accessibility and inclusivity.

02



Economic

Increased conversions, customer retention, and reduced operational costs.

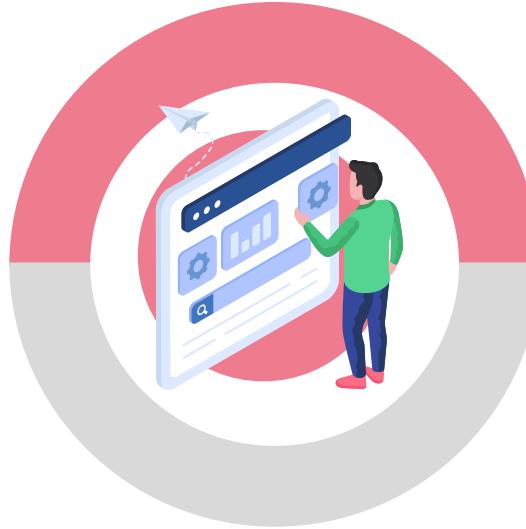
03



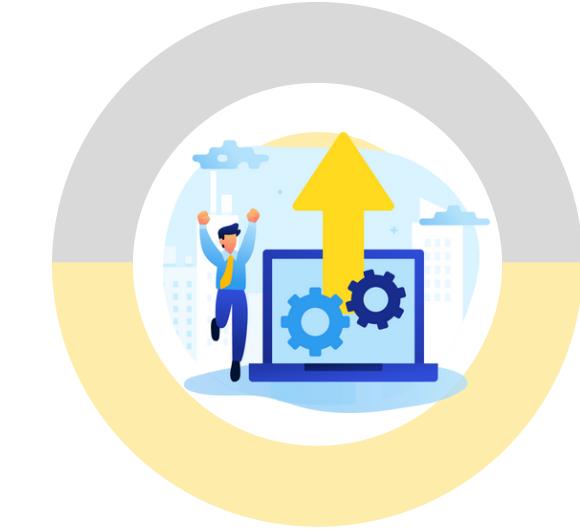
Environmental

Lower energy consumption and reduced carbon footprint through efficient computing.

Impact on the Audience



Enhanced User Experience

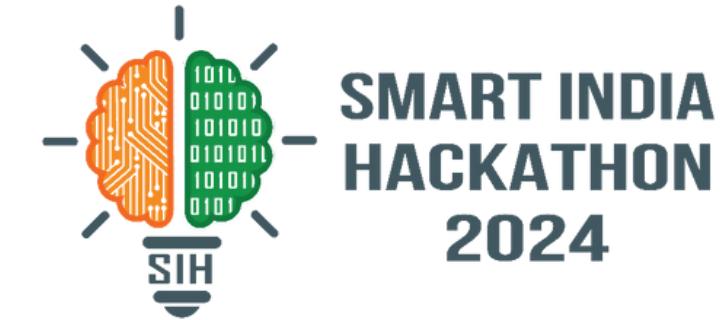


Increased Accessibility



Higher Engagement

RESEARCH AND REFERENCES



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2. L. Ahn, M. Blum, N.J. Hopper, J. Langford
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3. HUMAN. (2024). Why Businesses are Choosing CAPTCHA Alternatives. HUMAN.
<https://www.humansecurity.com/learn/topics/why-businesses-are-choosing-captcha-alternatives>
4. Chu, Zi & Gianvecchio, Steven & Koehl, Aaron & Wang, Haining & Jajodia, Sushil. (2013). Blog or block: Detecting blog bots through behavioral biometrics. Computer Networks. 57. 634–646. 10.1016/j.comnet.2012.10.005.