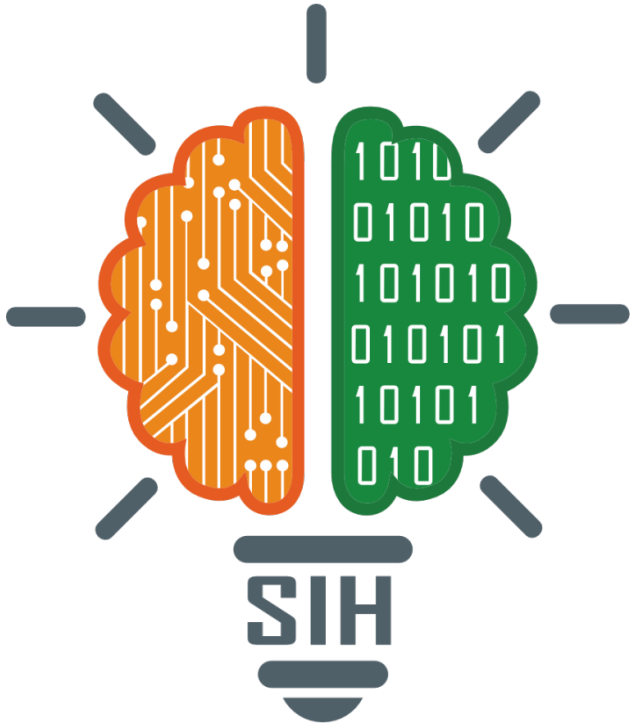
SMART INDIA HACKATHON 2025

Team Name - **Hackstreet Boys**

TITLE PAGE

- **Problem Statement ID –**25065
- **Problem Statement Title- Designing and development of an application for on spot assessment of Roof top rain water harvesting and artificial recharge potential and size of the RTRWH and AR.**
- **Theme- Smart Automation**
- **PS Category- Software**
- **Team Name- Hackstreet Boys**



IDEA TITLE

❖Proposed Solution (Describe your Idea/Solution/Prototype)

- We propose to build a **mobile/web application** that enables users (households, institutions, urban planners) to calculate rooftop rainwater harvesting potential and design suitable artificial recharge systems. The app will be simple for citizens yet powerful enough to help municipal bodies in water conservation initiatives.

Why It's Unique:

First-of-its-kind citizen-focused RTRWH calculator (most tools are either offline PDFs or technical hydrology software).

Bridges citizens and policymakers—individual assessments also generate valuable regional water data.

Gamification and visualization encourage action, making it not just a calculator but a **behavior-change tool**.

Built with **low-cost tech stack** (mobile-first, open APIs), making deployment across India feasible.

TECHNICAL APPROACH

- **Technologies to be used-** Flutter, Node.js,openWeatherMap Api, Google map Api, Github etc.
- Methodology and process for implementation- Requirement analysis, System design, Development, Testing, Deployment, Evaluation and End.

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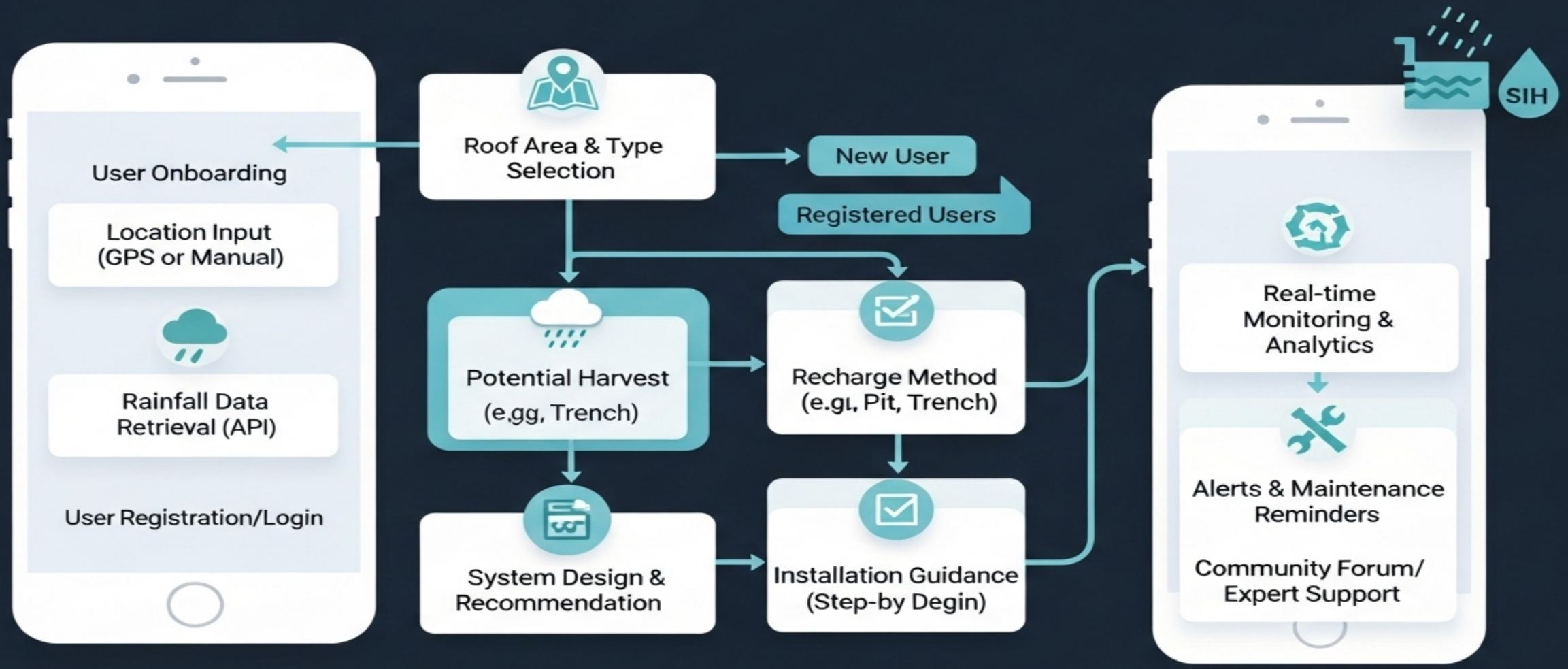
Rooftop Rainwater Harvesting & Artificial Recharge Workflow



FEASIBILITY AND VIABILITY

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- **Analysis of the feasibility of the idea-**

1. Low development cost, high impact
2. Scalable
3. High social and environmental relevance

- **Potential challenges and risks-**

4. Accuracy of rainfall data
5. Complexity in roof size estimation
6. Low awareness among citizens
7. Integrating IOT

- Strategies for overcoming these challenges-

8. Use trusted datasets
9. Manual input of roof size
10. Include visual infographics

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Impact and Benefits of RAINWATER HARVESTING APP

1 WATER CONSERVATION:

- Encourages sustainable use of rainwater.
- Reduces dependency on municipal water supply.

2 ENVIRONMENTAL PROTECTION

- Prevents groundwater depletion.
- Reduces flooding and waterlogging by proper recharge planning.

3 SUPPORT FOR GOVERNMENT MISSIONS

Aligns with **Jal Shakti Abhiyan** and **ATMANIRBHAR BHARAT** by promoting water sustainability.

4 COST SAVINGS

Helps households, schools, and industries save money on water bills.

5 AWARENESS & EDUCATION

- Spreads knowledge about the importance of rooftop rainwater harvesting (RTRWH) and artificial recharge.
- Acts as a digital

RESEARCH AND REFERENCES

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- **Details / Links of the reference and research work-**
  - Bureau of Indian Standards
  - Central Ground Water Board
  - GIS for Rooftop Evaluation
  - Water Literacy Foundation (Bangalore)
  - Kaggle for datasets