

Exposure and Field Visits for Problem Identification

Innovision 2025: Engineering Change Through Ideas with Innovation

Submitted by

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**BANNARI AMMAN INSTITUTE OF TECHNOLOGY –
INSTITUTION'S INNOVATION COUNCIL**

&

Industry Exploration and Collaboration Cell

Duration: 18/10/2025 – 22/10/2025

ABOUT THE PROGRAM

**Event Title: Innovision 2025: Engineering Change Through Ideas
with Innovation**

Duration: 18/10/2025 – 22/10/2025

The event aims to bridge the gap between real-world business challenges and innovative technological solutions. Innovision 2025 is a platform where creativity meets purpose. The event empowers students to tackle real-world problems through technology-driven innovation. Participants will collaborate, ideate, and present practical solutions that can make a tangible impact on society and industry. It's not just about building prototypes — it's about engineering meaningful change. Through detailed research and analysis, they will propose cutting-edge tech-driven solutions that enhance efficiency, reduce costs, and streamline processes. This initiative not only fosters problem-solving skills but also sparks potential startup ideas, paving the way for impactful innovations in various industries.

ABOUT THE STUDENT

S.NO	Description	Details
1.	Name of the student	Madhumitha S
2.	Register Number	7376252IT234
3.	Department	IT
4.	Year of study	2025-26
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7.	Location	Thuraiyur

Problem Title:

Uncontrolled growth of Water Hyacinth in lakes at Thuraiyur Taluk.

1. Problem Statement (as per Smart India Hackathon)

An Uncontrolled proliferation of invasive water hyacinth in lakes is a dire environmental problem that degrades water quality, suffocates aquatic life, and cripples local economies reliant on water resources.

2. Local Context – Field Visit Details

Taluk / Town	Thuraiyur Taluk
Date of Visit	19 October 2025
Time of Visit	10:30 AM – 1:35 PM
Ward Numbers Covered	Ward 8
Team Members Present	Myself + two Members (Harini F. and Salini G.)
Taluk Contact Person	Mr. Vijay Ananth, Cleaning Manager (Mobile No. 98787 90543)
Photographic Evidence	Two photos attached – collection truck at Ward 8 and dump near Thuraiyur bus stand
Permission Letter Reference	Link

3. Related SDG: SDG 6 (Clean Water and Sanitation)

4. Observations During Visit

1. Collection Process:

The collection removing water hyacinth from lakes involves an integrated approach using multiple methods to ensure sustainable control and avoid reinfestation.

2. Segregation Practice:

Require a combination of methods as no single practice is effective for large scale for long term management.

3. Lake Waste (approximate):

- High moisture content – 95 %
- Hemicellulose – 33 %
- Cellulose – 25 %
- Lignin – 9-10%

4. Quotes from Field:

- The plant is often described as a "green invader" or the "Terror of Bengal" due to its ability to choke waterways and disrupt—Mr.Rajkumar,worker(ward 7)
- An article notes that the hyacinth "affects human communities...obstructs water transport routes and water quality".

5. Local Stakeholder Map

Group	People Met / Data Source	Key Inputs
Taluk Officials	Mr. Vijay Ananth, cleaning manager	"Point source"(identifiable) "Non point source"(diffuse)
Waste Collectors	6 staff members interviewed	Desire for lighter bins, battery alert systems

Residents	lakes (Ward 7)	Lack of awareness on segregation rules
NGO Representative	Ms. rekka ravi ("Clean Earth" NGO)	Suggests public demo before deployment

6. Real Needs Identified

Uncontrolled growth of aquatic organisms in lakes, a process often referred to as eutrophication, is primarily caused by an excess of nutrients like phosphorus and nitrogen, often from human activities.

The real needs identified to address this issue include reducing external nutrient loading, implementing in lakes.

Manage agricultural and urban runoff, which carries excess fertilizers, animal waste, and sewage into lakes.

7. Data Summary

Ward	Avg.lakes Visited	Segregation Practicing (%)	Avg. Waste Per lakes(kg/day)	Total Collection Trips/Day
Ward 7	1	10 %	1.8 kg	3
Ward 8	1	5 %	2.2 kg	4

(All figures based on direct observation and worker inputs.)

8. Technology Direction (Local Feasibility)

Component	Reason for Choice	Availability in Town
Moisture Sensor	Detect wet waste	Available at Rathna Electronics, Gobi
IR Sensor	Detect plastic vs organic	To be ordered online
Arduino UNO	Data processing	Available locally
3 Servo Motors	Direct waste to 3 bins	To be procured from Coimbatore

Plastic Drum Structure	Local fabrication	200 L drums from municipal scrap yard
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Prototype Cost Estimate: ₹ 7,300

Local Support: Taluk Engineer promised space for trial at market junction once prototype is ready.

9. Reflection and Understanding

The uncontrolled growth of aquatic plants and algae in lakes is known as eutrophication, a process of excessive nutrient enrichment.

This phenomenon is driven by human activities, leading to severe ecological and societal consequences that require reflection and understanding to solve.

Hence, before building a product, a behavioral change pilot should be run in two wards for four weeks.

10. Next Steps

1. Design a 3-bin prototype with Tamil voice prompt.
2. Test battery efficiency in real conditions at Ward 7 Bustand.
3. Document feedback from three users (minimum).
4. Prepare a 10-slide report with photo evidence and usage log.

11. Attachments

- Photo 1: Collection truck at Ward 7 (Trichy Road, 10:45 AM)
- Photo 2: Waste yard entrance (11:50 AM)
- Interview Note 1: Signed by Mr. Vijay Ananth (Manager)
- Google Map Screenshot: Route from Bus stand to Dump Yard

Declaration

I confirm that the data in this report was collected in person on **19 October 2025** Thuraiyur Taluk and verified with the official mentioned above.

All photographs were taken by me using my own device, and the names of individuals were recorded with their consent for academic purposes only.

Name: Madhumitha S

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Register No.: 7376252IT234

Signature: Madhumitha S

Date: 19 October 2025