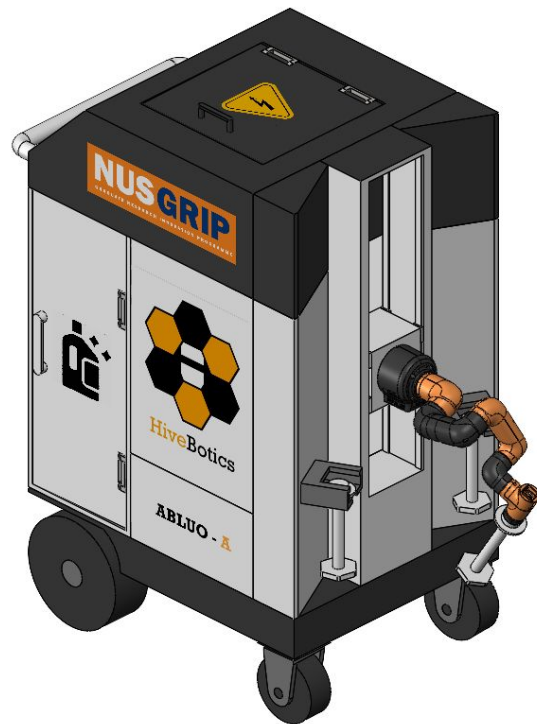


HiveBotics

Autonomous Robotic Cleaning Platform



Our Team



Rishab Patwari

*Computer Engineering Undergraduate
with iDP 2nd Major*

*Experience in Software Engineering
& New Venture Development*



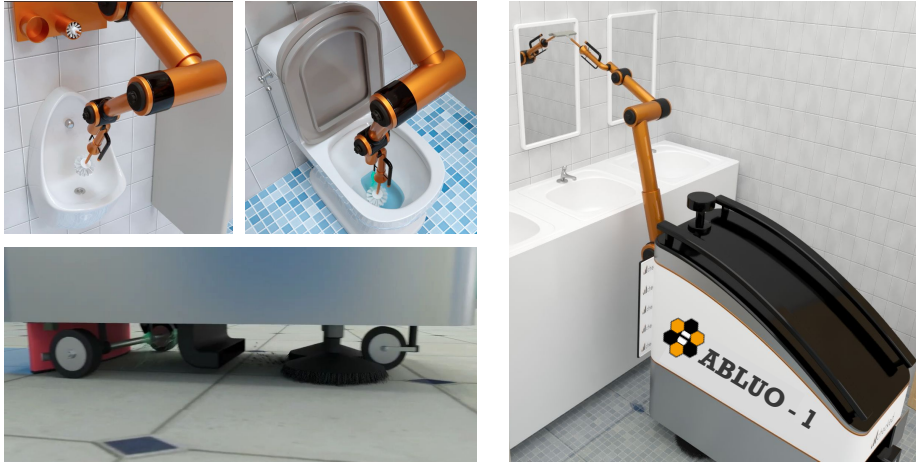
Nguyen Tuan Dung

*Mechanical Engineering Undergraduate
with iDP 2nd Major & Robotics Specialisation*

*Experience as Business Consultant & Sustainability
Analyst*



Our Product & Innovation

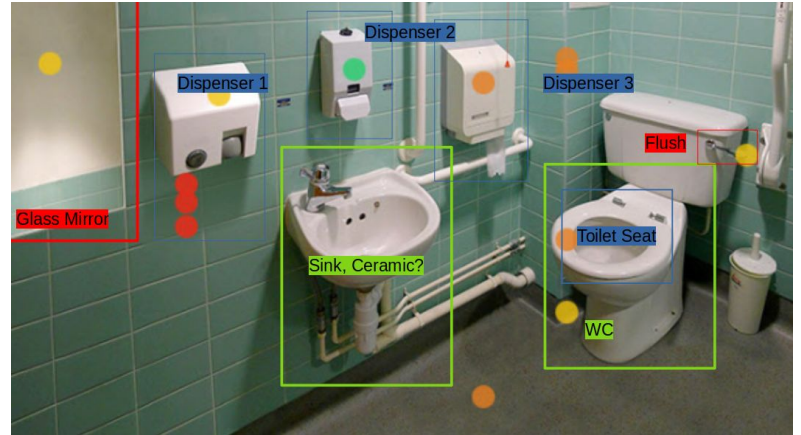


Single robot performs multiple cleaning tasks

- Robotic Arm can switch tools for different cleaning tasks

Key Technological Innovation:

- 1) Tool-changing & cleaning mechanism
- 2) Robotic arm cleaning algorithms
- 3) ML model to train robot for unfamiliar settings



System autonomously plans cleaning sequence and route in an unfamiliar environment

Relevant NUS research:

- Video Visual Relation Detection (DOI: [10.1145/3343031.3356082](https://doi.org/10.1145/3343031.3356082))



Product Features List

Task	Key Features	Abluo Alpha & Beta (MVP)	Abluo - 1	Abluo - 2	Abluo - 3
Bathroom Cleaning	Automated 6 DOF Arm Manipulation				
	Multi Tool Swapping				
	Water & Chemical Storage				
Autonomous Operation	Self Alignment				
	Real-time Trajectory Planning				
	Autonomous Navigation				
Quality Inspection	Cleanliness Data Analytics				
Robot Fleet Management	Cloud Management System				
Maintenance & Upkeep	Automatic Refilling & Charging Station				
	Modular Subsystems				



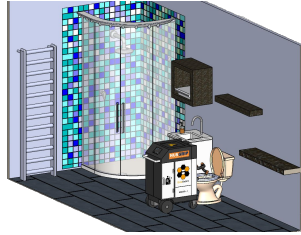
Product Roadmap



1 Abluo Alpha

MVP

- + Customer Validation
- + Product Testing



2 Abluo Beta

Product Improvement

- + Meeting required performance
- + Customisation on industry needs



3 Abluo - 1

Hospitality Industry

- + Luxury & Upscale Hotels
- + Cleaning Contractors



4 Abluo - 2

Commercial Buildings

- + Shopping Malls
- + Airports
- + Office Buildings
- + Universities
- + Hospitals



5 Abluo - 3

Residential

- + For Affluent Homeowners
- + Miniaturised & Reduced Cost

Q3

Q4

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

Beyond 5Y

2021

2022

2023

2024

WHAT WE DO



Scrub



Wipe



Dry



Inspect



SPECIFICATIONS



6 tools
supported



6 hours shift
1 hour charge



Vertical: 2.5 m
Horizontal: 1 m



Windows, Linux,
iOS, Android

CONTACT US



HiveBotics



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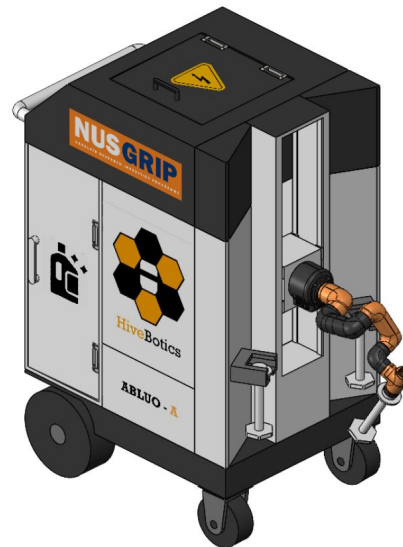


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An Introduction to

ABLUO

*The one-stop solution for your
bathroom cleaning needs*



HOW IT WORKS



After purchase, an initial calibration is done at the desired cleaning location

Charging Station ensures Abluo is ready for use



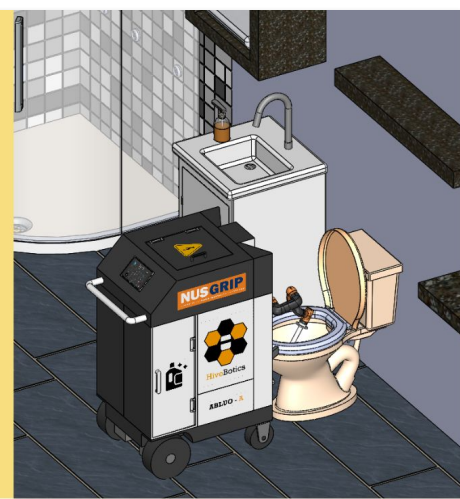
Cleaner pushes Abluo to the bathroom & starts cleaning routine



Abluo signals cleaner once finished and can be used in another bathroom



Cleaning of supported utilities is done automatically



OUR ROADMAP

2021



2022



2023



2024



BEYOND 5Y



Abluo Alpha

- + Automated Robot Arm
- + Multi Tool Swapping
- + Water & Chemical Storage
- + Self Alignment

Abluo Beta

- + Improved algorithm
- + Performance meets industry needs
- + Customization based on testing

Abluo - 1

- Hospitality Industry**
- + Real-time Trajectory Planning
- + Automatic Refilling & Charging Station

Abluo - 2

- Commercial Building**
- + Autonomous Navigation
- + Data Analytics
- + Cloud Management System

Abluo - 3

- Residential Sector**
- + Modular Subsystems
- + Miniaturisation
- + Cost Reduction

