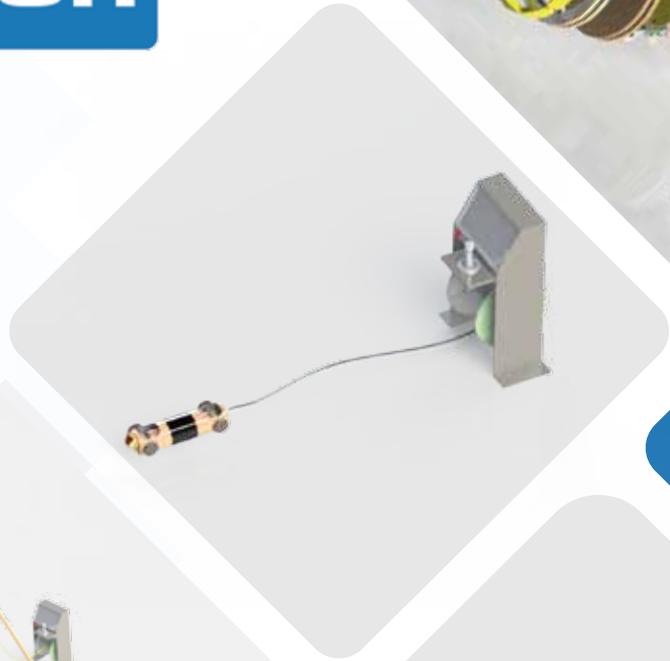


COMPANY PROFILE 2019

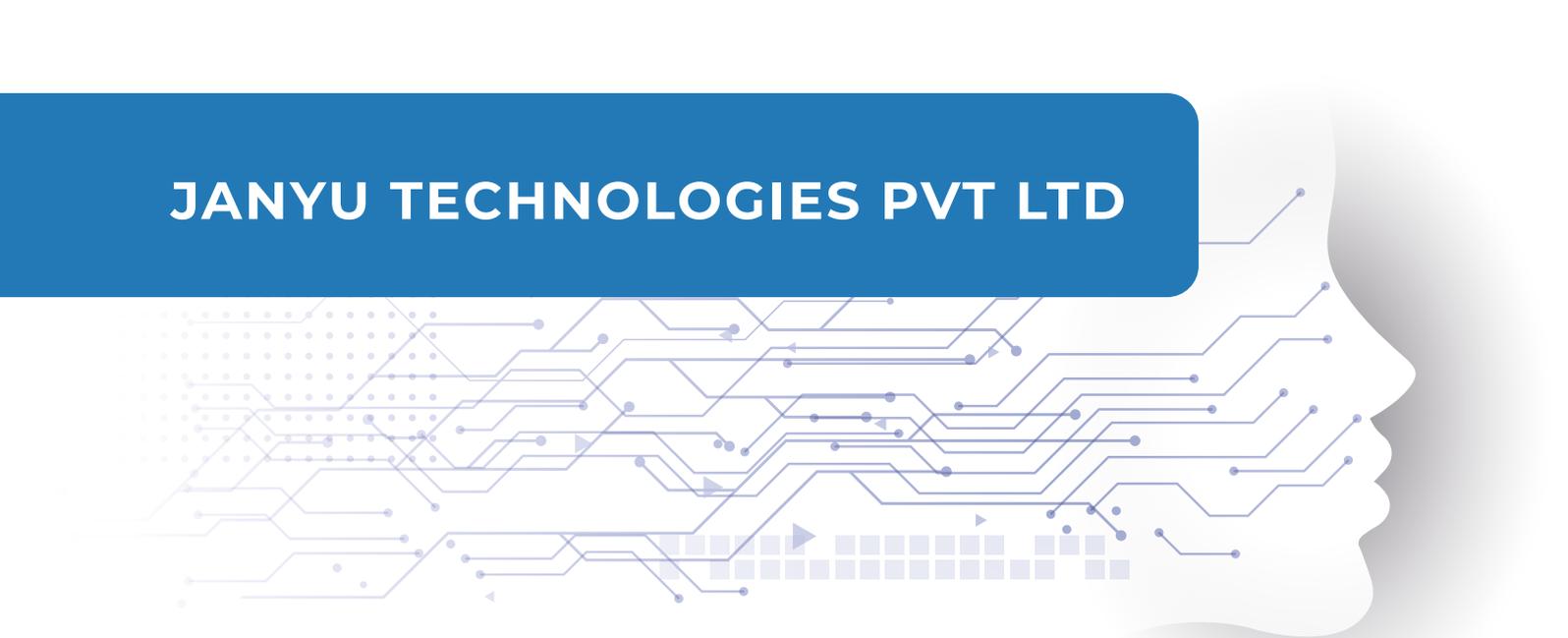
JANYU **TECH**



HUMAN ENABLING COLLABORATIVE ROBOTS

www.janyutech.com

JANYU TECHNOLOGIES PVT LTD



Janyu – means fire/creation/birth in Sanskrit. Janyu is the birth of a new era. Fire is the first invention/discovery of Mankind which made us different from the rest of the animals- civilization.

Janyu Technologies Private Limited is engaged in designing, developing and manufacturing of Human Enabling Collaborative portable mobile field ROBOTS for hostile/constrained work environments. We believe that technology, when customized as per need and made affordable with a concern for fellow beings, will result in sustainable growth and healthy ecosystem.

Our focus lies in the strategic sectors of Aerospace, Defense, Energy, Logistics, Manufacturing and Shipping.

The know how we have gained in designing, developing and manufacturing a Multi-Purpose RoV, VARAHA-ROV, for defence application is being leveraged for the development of Industrial Collaborative robots.

The architecture of the robotics platform is modular and designed for customization and scaling to different applications.

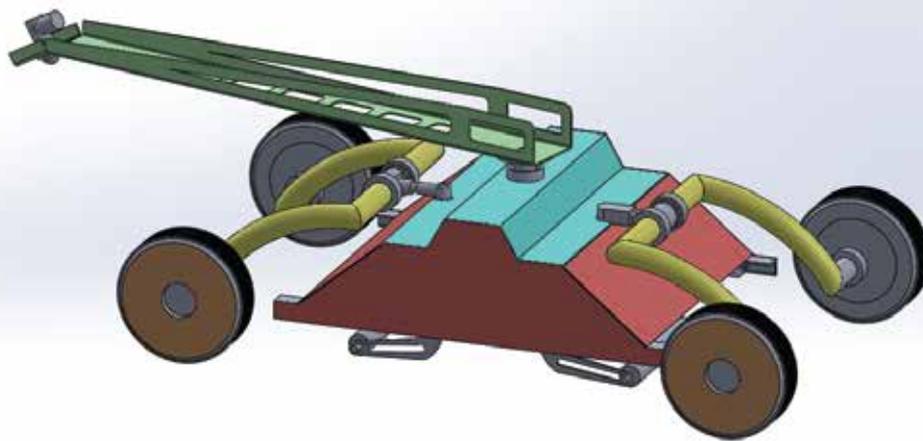
Our robots have the following edge over international robots:

- **Smaller footprint and dexterity – to work in constrained spaces**
- **Extreme Ease of installation, operation – Modular design and Intuitive User experience for unskilled workforce**
- **Intelligent and safe – no safety barricades required**
- **Affordability – At Least 2- 3 times more affordable than international competitors**
- **Service & Maintenance: One stop solution as an OEM**

MAGNETIC CRAWLER FOR SURFACE CLEANING

Petroleum industry is one of the major sectors in engineering domain, along with refineries it has major application of storing the extracted petroleum product. Industries uses large industrial tanks which requires periodic maintenance. As tank sizes are too large maintaining tank manually becomes a time consuming tedious task. As petroleum storage areas are hazardous for humans to intrude there has to be a solution for cleaning tank walls both from interior and exterior as well.

Janyu tech has come up with the innovative solution known as WaCS (Wall Cleaning System), A common solution for tank maintenance, cleaning and NDT (Non destructive testing) inspection for petroleum Tanks.



PRODUCT ANATOMY

WaCS comprises of three systems

DRIVE SYSTEM | CLEANING SYSTEM | SENSING SYSTEM

- Independent wheel drive with tank curvature adjustment.
- Magnetic Wheels to adhere the tank wall.
- Easy Steer.

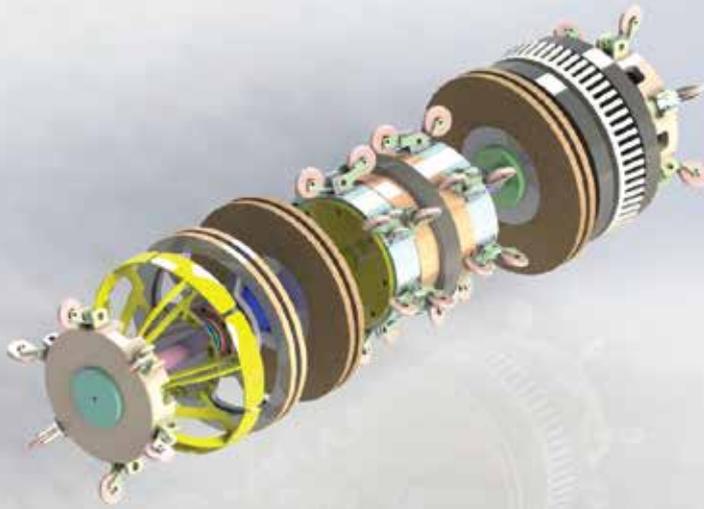
- Use of Abrasive Jets to clean the tank (Deburring).
- Large Oscillating arm span to clean maximum area at a stretch.
- Extra fine particle combination can be achieved by altering deburring mixture.

- It includes MFL (Magnetic flux leakage) sensor probe to sense the voids and tank thickness.
- Self-adjustable rollers to always be in contact with wall.
- Realtime data monitoring.

SMART PIPELINE INTERVENTION GADGET (SPIG)

Petroleum industry is one of the major sectors in engineering domain along with refineries it has major application of the piping as pipes are employed to transport the extracted petroleum products via cross country pipelines. Maintenance of these huge pipe lines is one of the tedious tasks in front of engineers.

Janyu tech has come up with the innovative solution known as SPIG, A common solution for pipeline maintenance, cleaning and NDT (Non destructive testing) inspection for petroleum pipes.



PRODUCT ANATOMY

WaCS comprises of three systems

DRIVE SYSTEM | CLEANING SYSTEM | SENSING SYSTEM

- Helix type screw drive to propel matching pipe diameter.
- Self-adjusting Wheels for stipulated pipe range diameters.
- Self-bending feature to adjust pipe bends.
- Easy connectivity with Cleaning and Sensing PIG.
- Wirelessly driven.

- Stator wheels to maintain the concentric position.
- Hard blades are adjustable and provided with mono suspension to overcome pipe irregularities.
- Extra fine cleaning discs.
- Magnetic accumulator for ferrous dust.

- It includes MFL (Magnetic flux leakage) sensor probe to sense the voids and pipe thickness.
- Sealing Disc to protect it from sludge.
- Stator wheels to maintain position.
- Armed ring to reduce the probability of inaccurate sensing.

ROBOTIC SLUDGE CLEANING SYSTEM

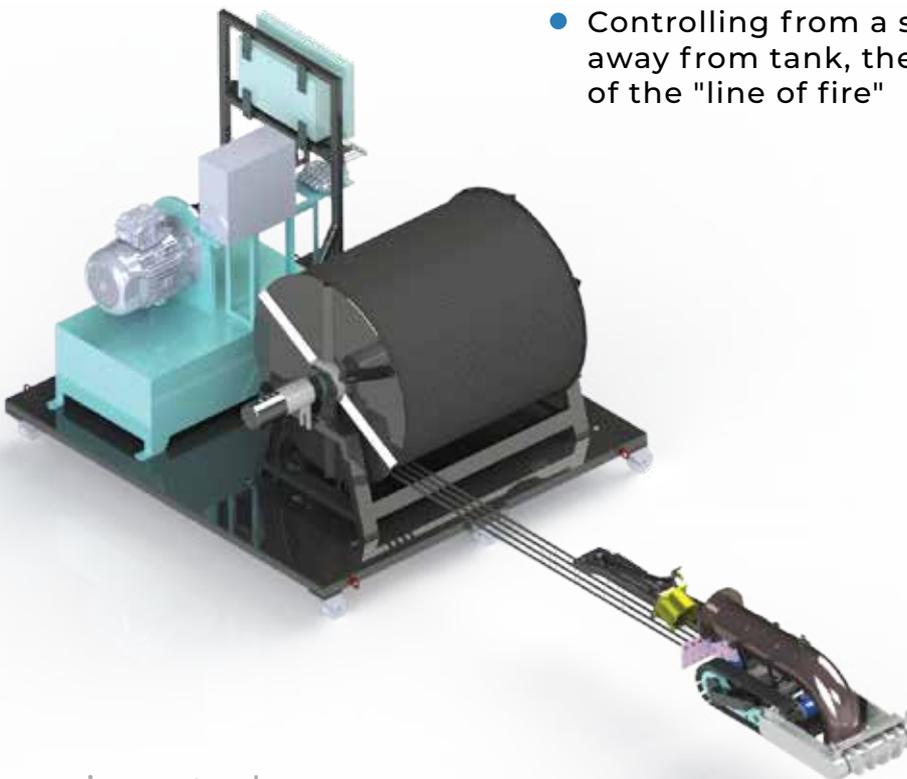
Janyu Technologies is involved in design, development and delivery of custom robotic solutions for hazardous environments.

Varaha SC-H is capable of performing operations in corrosive, hydrocarbon and underwater environments. Some of the key features of the robot are as follows:

PRODUCT FEATRES



- 100% hydraulically operated, submersible Remotely Operated Vehicle.
- High power sludge cutting roller with flipper arm. Robotic arm equipped with camera and mount for Water jet nozzle.
- Suction hood for sludge extraction.
- Submersible waterproof cameras with flash lights.
- Suitable for ATEX Zone 0 area
- Fits through a man entry hole, from \varnothing 450 mm
- Controlling from a safe distance ~ 50 metres away from tank, the operator is out of the "line of fire"



WATER TANK CLEANING ROBOT

Varaha SCE RoV is a robust, easy to operate and easy to carry crawler with removable and interchangeable accessories for different submerged cleaning applications of Water storage tanks.

These are aptly suited for flat bottom tanks, pipelines and upto inclination of 10 degrees and customized for any further needs.



PRODUCT FEATURES

Considering 1 lakh litre tank capacity we can safely assume the following size options
i.e. 5x5x4 / 10x5x2 / 10x2.5x4 etc.

Let us take 5x5x4 it will be one hour to clear the floor and for the wall, it would be 1.5 hours.

OTHER KEY FEATURES

- The suction pump is rated at 30000 Litres per Hour, using which a 1 lakh litre tank can be emptied in about 3.5 hrs.
- The submersible cameras can withstand upto 20 metres of submersion.
- The lowering winch helps is easy deployment of the robot through the man entry hole. Also in case of emergency, the cable can be pulled back.



PIPELINE SURVEILLANCE SYSTEM

The Pipeline Surveillance System is an effective means to survey the pipeline cleaning process visually. The System is capable of delivering efficient performance in industrial as well as domestic applications. Few Key areas of applications are Industrial Pipelines, Underground Pipelines, Tunnels etc. Some of the Key Features are mentioned herein.

KEY SPECIFICATIONS

- **Robotic Crawler:**

Speed: 1-1.2 metre/sec

Weight: 22 kgs

Submersible in Water or liquids pH 6-8 upto 20 metres depth.

Fits through: Compact Size to enter from the manhole of minimum 150 mm diameter. 150 mm manhole/pipeline

Reach : 150 metres.

Steering: Differential Skid Steering

Omni Wheels for easier mobility

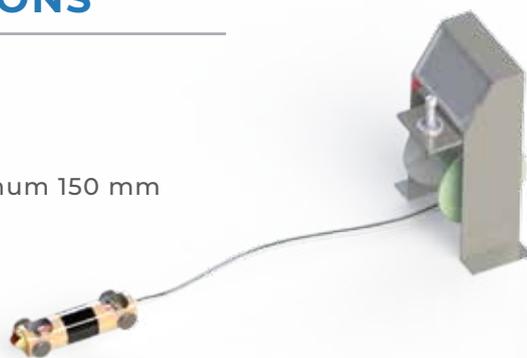
24 Volt Operating line from User Console.

PTZ Camera with wired communication to the User Console.

Rear View Camera for better situational awareness.

Positioning System for GPS Coordinates - integrated with the User Console.

Obstacle sensors to avoid collision



- **User Console:**

Portable User Console.

Power Distribution card to supply necessary power to the Crawler.

Joystick for navigating the crawler.

Live feed of the PTZ camera.

Identify obstacles in the pipeline path.

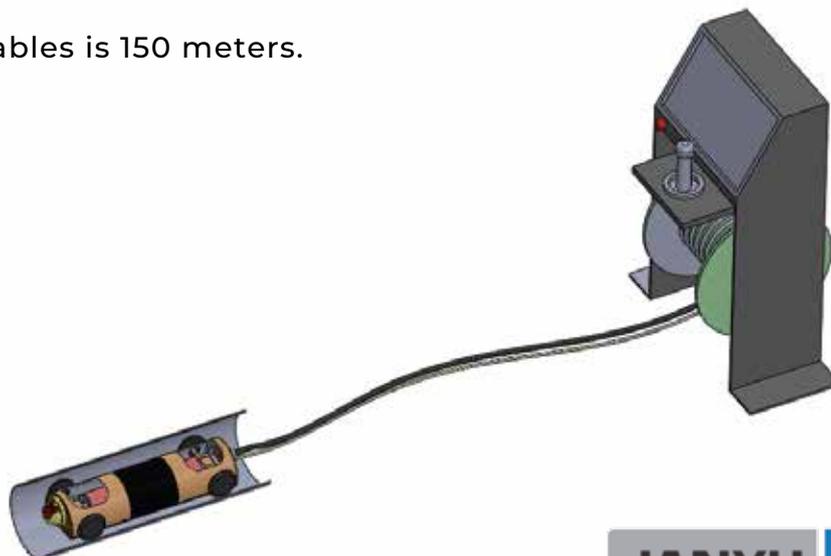
Emergency switch to halt the navigation of the Crawler in the event of any unexpected event.

- **Harness for efficiently Lowering / Lifting the crawler in / out of the manhole and pipeline.**

- **Industrial grade shielded cables for effective communication and power line link in between the User Console and Crawler.**

- **Winch for efficiently rolling the shielded cables.**

- **Effective Length of the cables is 150 meters.**



JANYU TECH

Spearheading Human Enabling Robots

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Our focus is on human enabling robotic solutions for hazardous , strenuous and repetitive work environments.