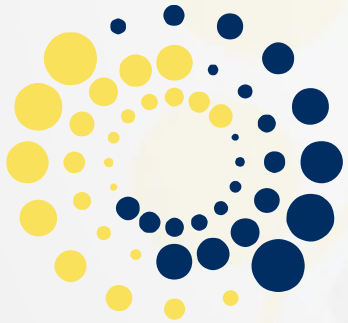


Collaborative Intelligence

Technology Innovation

“The first step is to establish that something is possible; then probability will occur.”

Elon Musk

COLLABORATIVE INTELLIGENCE

Making the Unmanned

Intelligent

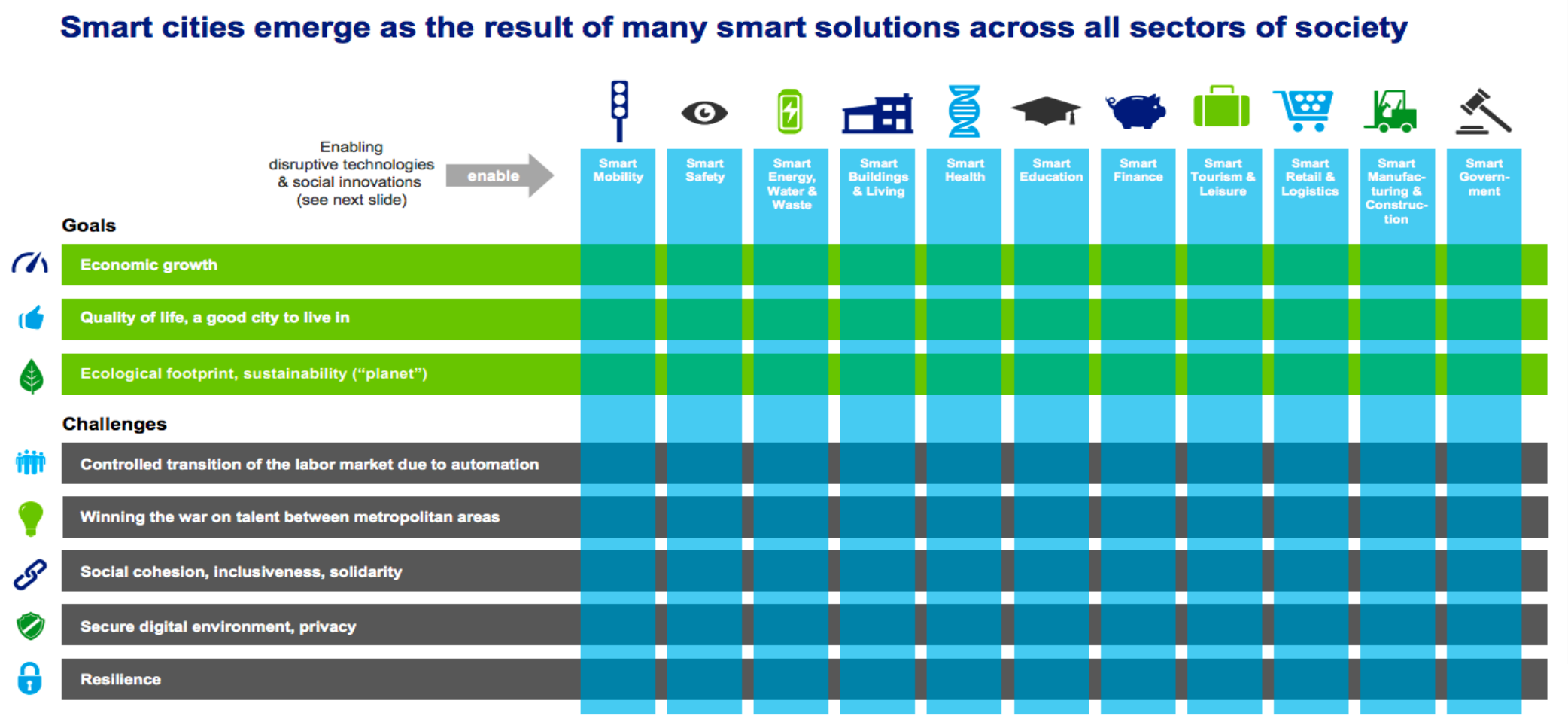
We have over years of collaborative research in deep-tech, using computer vision, machine learning and robotics to transform unmanned devices into intelligent objects of purpose!

PRODUCT RANGE- INTELLIGENT SURVEILLANCE, SECURITY & INSIGHTS

AI (ciTryambak range of applications)	Robotics (ciRakshak product range)
Traffic Violation, Intelligent Surveillance and Access Control	ciRakshakBOT – Load carrying w/remote drop off)
Animal Safety in Animal Corridors	ciRakshakMINI- Hybrid wheel assembly
Unauthorized objects in the sky –Drone detection	ciLynx – Agile, stealth, self-destruct mode
Satellite Image Analytics	ciLynx-mini-Throwable, intelligent surveillance

WHAT DO WE MEAN BY “SMART CITIES”?

A city is smart when investments in (i) human and social capital, (ii) traditional infrastructure and (iii) disruptive technologies fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.



DELOITTE 2015

AI adoption – Critical to Sustainability?

The 6 crucial elements for sustainable Smarter Cities:

- ICT: Information and Communication Technology
- IoT: Internet of Things
- Sensors
- Geospatial Technology
- Artificial Intelligence
- Blockchain

Demand for sustainable Safe & Smart Cities ….

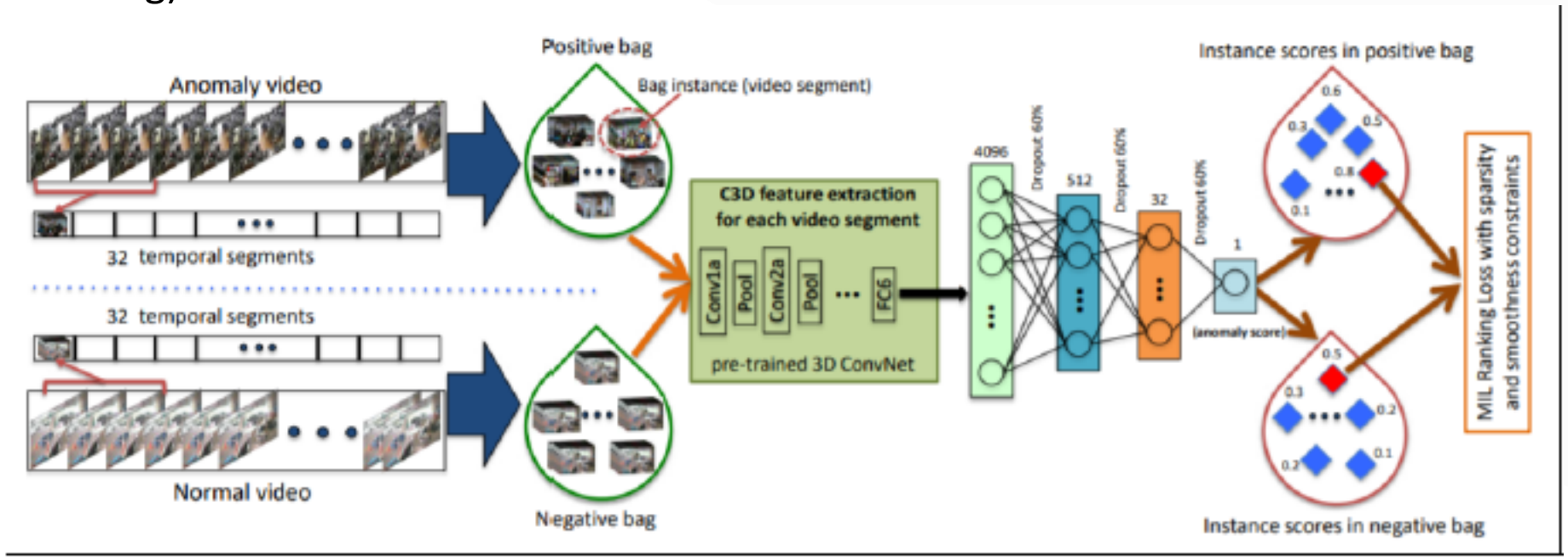
COVID has induced a shortage of human workforce, there has been a sudden spike in the use of AI-enabled surveillance cameras at public places. There is a glaring deficiency in the utilization of surveillance cameras and an unworkable ratio of cameras to human monitors. 3 key areas in technology maturity:

- **Integrated Models**: from static camera based models to an integrated multi-sensor architecture of aerial and satellite imagery and geospatial technology
- **Instance based to anomaly detection**: Move from an Instance based model for specific violation to an anomaly based real time model
- **Data Science Models**: Adoption of Computer vision based algorithms that can accurately and quickly predict locations of different objects for real world anomaly detection yet appears to be a single, end-to-end unified network

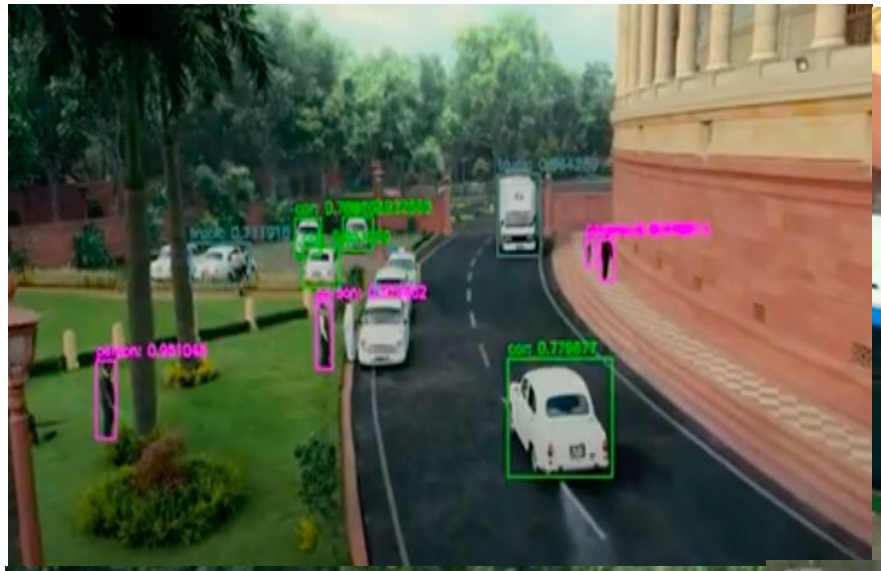
“If man and machine work side by side, which one will make the decisions?”

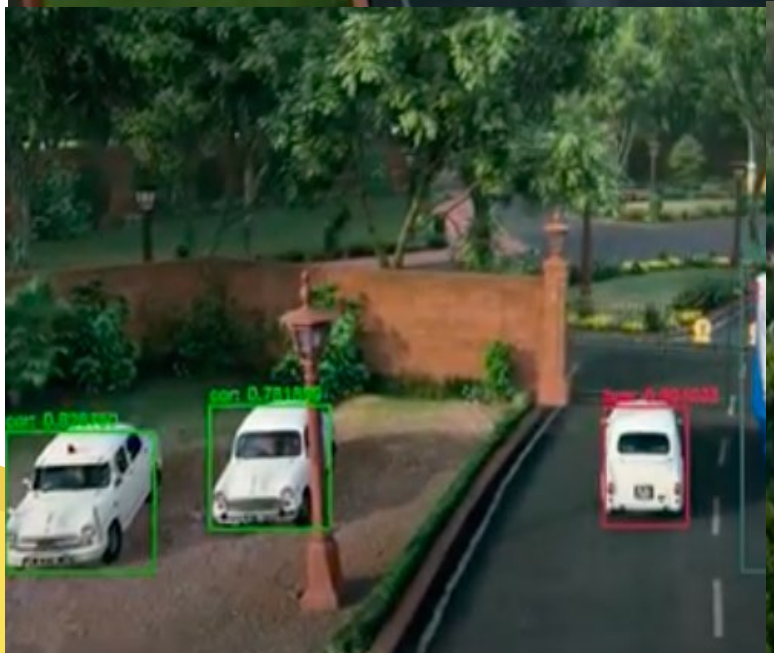
Our Use Case: Intelligent Surveillance & Anomaly Detection

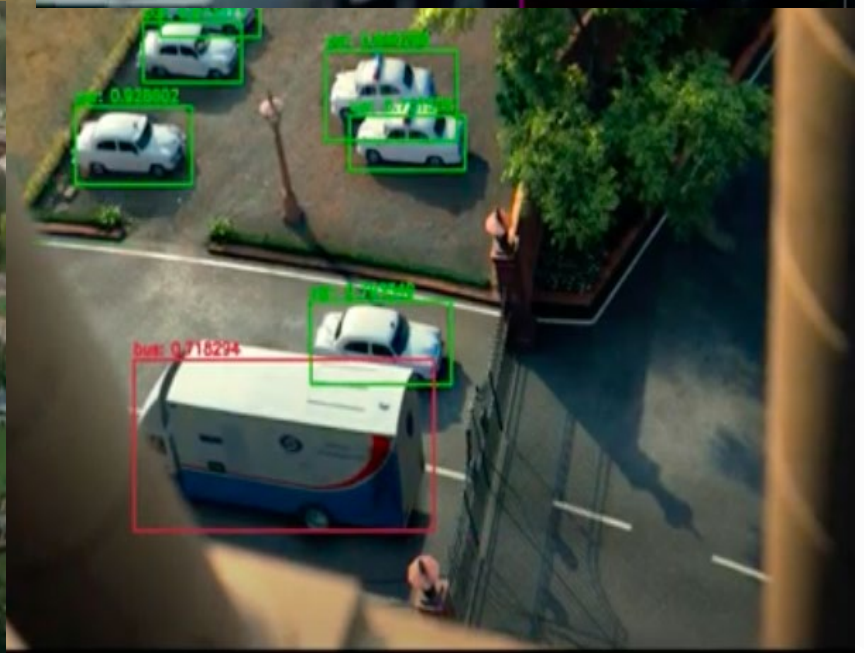
- A key institution was identified for dynamic dataset and real-world scenario
- Used both static CCTV cameras and aerial imagery
- We used a hybrid model for smart video surveillance and anomaly detection that takes the capabilities of autoencoder and MIL (Multiple Instance Learning).
- A 3 tier architecture was used in client/server environment with a real-time alarming system
- Surveillance videos were divided into segments
- Segments were classified into instances in a bag
- Employing both positive (anomalous) as well as negative (normal) bags to train the anomaly detection model through the deep MIL ranking loss.



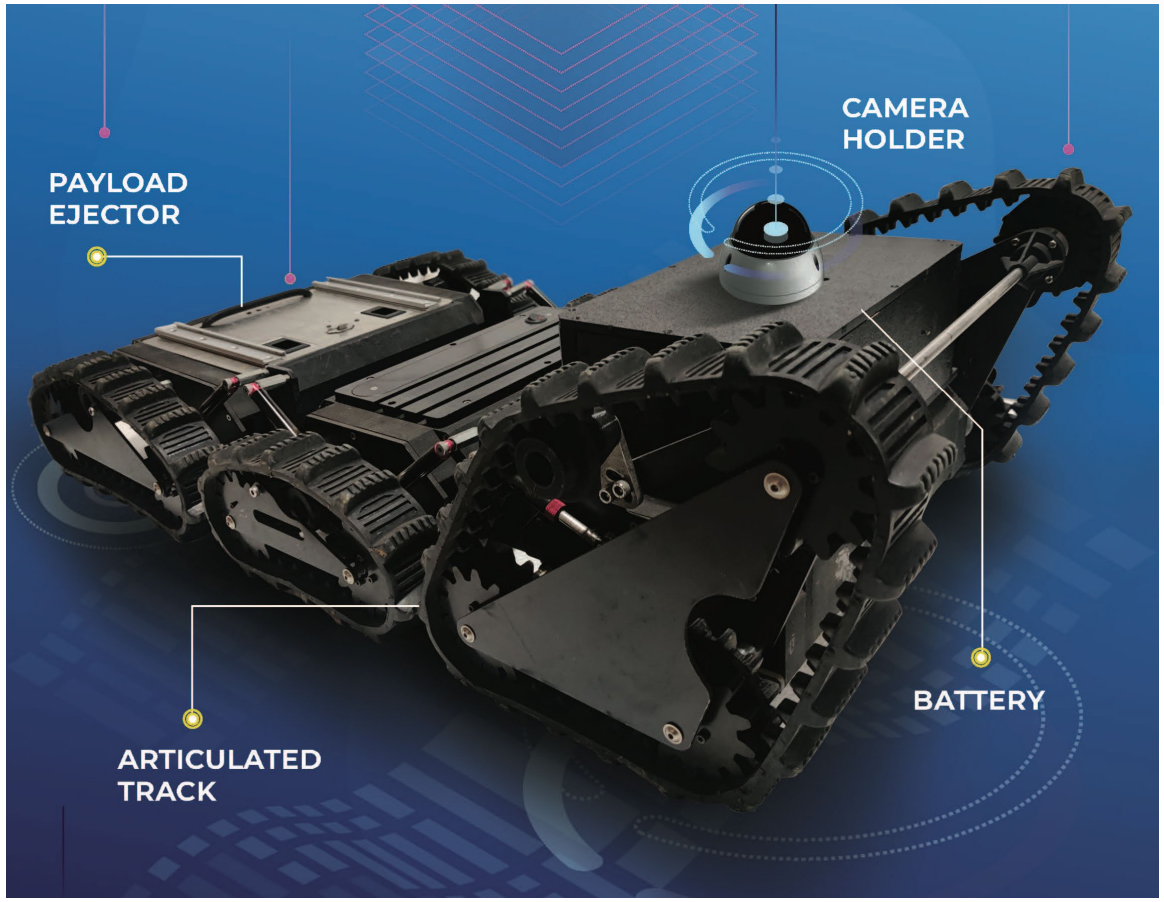
Our Use Case: Intelligent Surveillance & Anomaly Detection





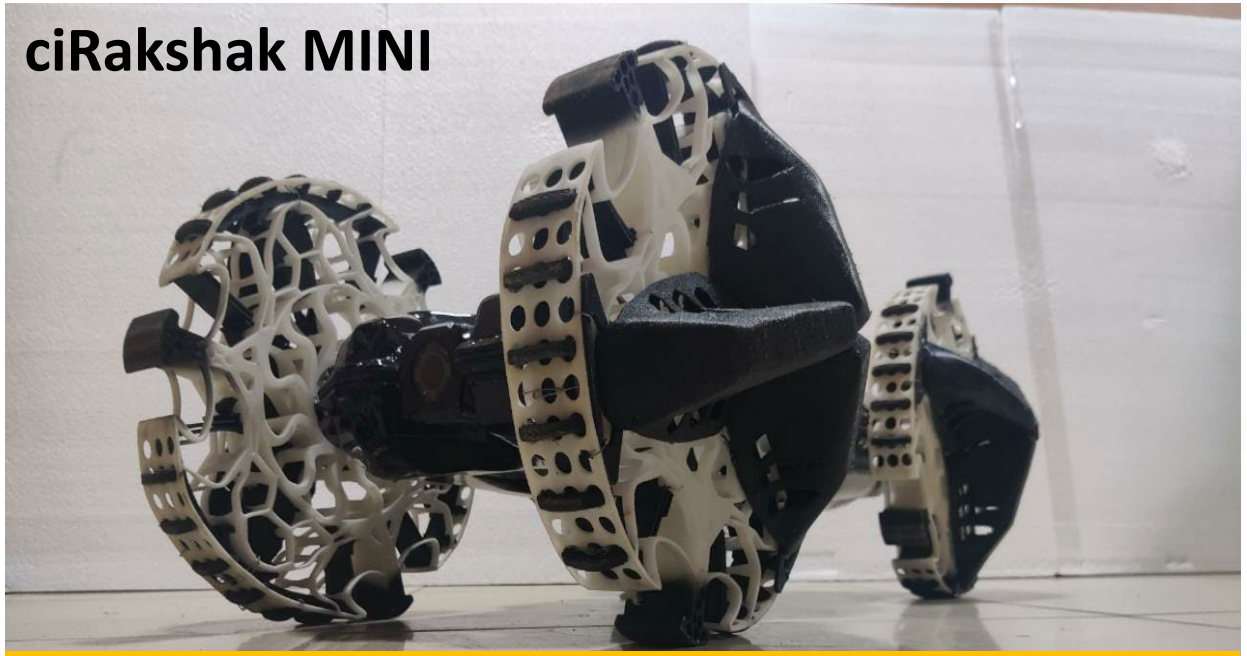


Our Robotic Surveillance Products at a glance



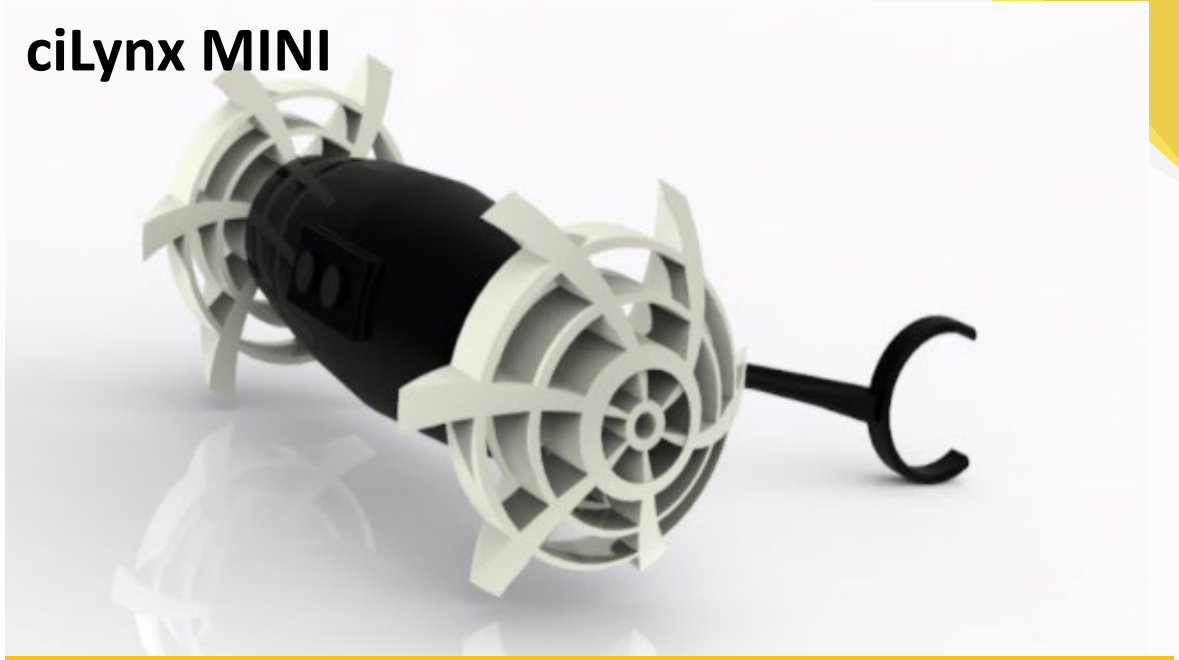
Our Robotic Surveillance Platform at a glance

ciRakshak MINI



- Stair Climbing without reconfiguring wheels patent
- Self righting video – there is no “upside down”
- 360° environment views
- Tilt Front Camera allowing inspection under vehicles or buildings

ciLynx MINI



- Micro throwable robot for surveillance & reconnaissance
- Two IR cameras with LED lights
- Ease of use, drop in hazardous areas or house
- Support in search & rescue operations

Thank you

Contact Information:

WWW: http://collabint.com/ | info@collabint.com,,

Registered Address: PNB 063, The Pinnacle, DLF Phase-V, Gurugram - 122009, Haryana, India

Sangeeta Das: 9811603910, sdas@collabint.com | Rahul Barooah: 9769500389, rahul@collabint.com