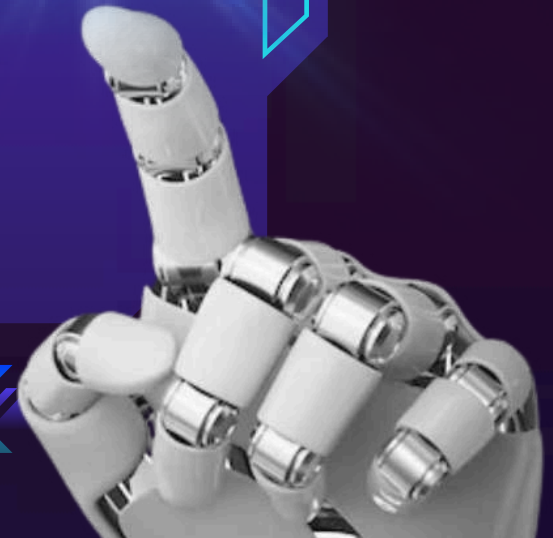




**FOR IMPROVEMENT  
RESEARCH IN SCIENCE &  
TECHNOLOGY**



# USP

- Designed for Defense
- Most powerful and compact
- Most rugged and robust
- **Make in India** with full control system and controllers
- Short turning and easy to control straight line & angular 360 gyro
- Individual differential gear for each drive
- Straight line and angular following algorithm
- Automatic fire point detection & alarming
- Water & Foam fire fighting monitor
- PTZ Thermal remote controlled Camera
- Any one can operate our robot in one minute of training



# NIRMAL TRADERS

Mob.: 9622722000 | 9419235075 | 9419189565

4/8 Near R.N. Tagore Public School, Nanak Nagar, Jammu

# ATV Chassis

**XENA** 5.0  
INDUSTRIAL ROBOTS

- XENA™ 5.0 World's Most Compact ATV Robot
- LXWXH 1280 X 890 X 1250
- World's Most Power full ATV For Defense
- Payload Up to 560 Kg & Drag Up TO 10 Ton of vehicle
- True ATV 45° Slope, Up to 30 Cm of Stage
- Single Board Control System, Make In India
- Iron Core rubber track, most rugged & robust
- Patented technology in Differential drive
- Temperature range up to 500°



# NIRMAL TRADERS

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4/8 Near R.N. Tagore Public School, Nanak Nagar, Jammu

## USP Robot Chassis

- Most powerful and compact designed for Defense
- Adaptive Braking Technology
- 1000 Kg Payload
- 10 Ton Vehicle and 100 M two Charged hose dragging capacity
- Iron Core rubber track 25MM thick
- 5-6 Hr Endurance 48V/ 65AH Dual Battery
- Short turning and easy to control
- Individual differential gear for each drive BLDC Motor
- Gyro based Straight line and angular following algorithm
- AI Object Tracking engagement with PTZ followed up , fire point detection
- Dual camera front and main PTZ thermal & optical camera.



# NIRMAL TRADERS

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4/8 Near R.N. Tagore Public School, Nanak Nagar, Jammu

# USP

- Robot chassis is Designed for Defense
  - Most powerful and compact
  - Most rugged and robust
  - **Make in India** with full control system and controllers
  - Short turning and easy to control straight line & angular 360 gyro
  - Individual differential gear for each drive with additional latch gear to power up drive system
  - Automatic fire point detection & alarming
  - Water & Foam fire fighting monitor
  - PTZ Thermal remote controlled Camera
- Any one can operate our robot in one minute of training**



# NIRMAL TRADERS

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# Tactical Combat Operations

- Robot chassis is Designed for Defense
- Most powerful and compact
- Most rugged and robust
- Autonomous weapon station
- Surveillance
- House clearing drills
- Goods Transportations
- Rescue operations
- Combat roles



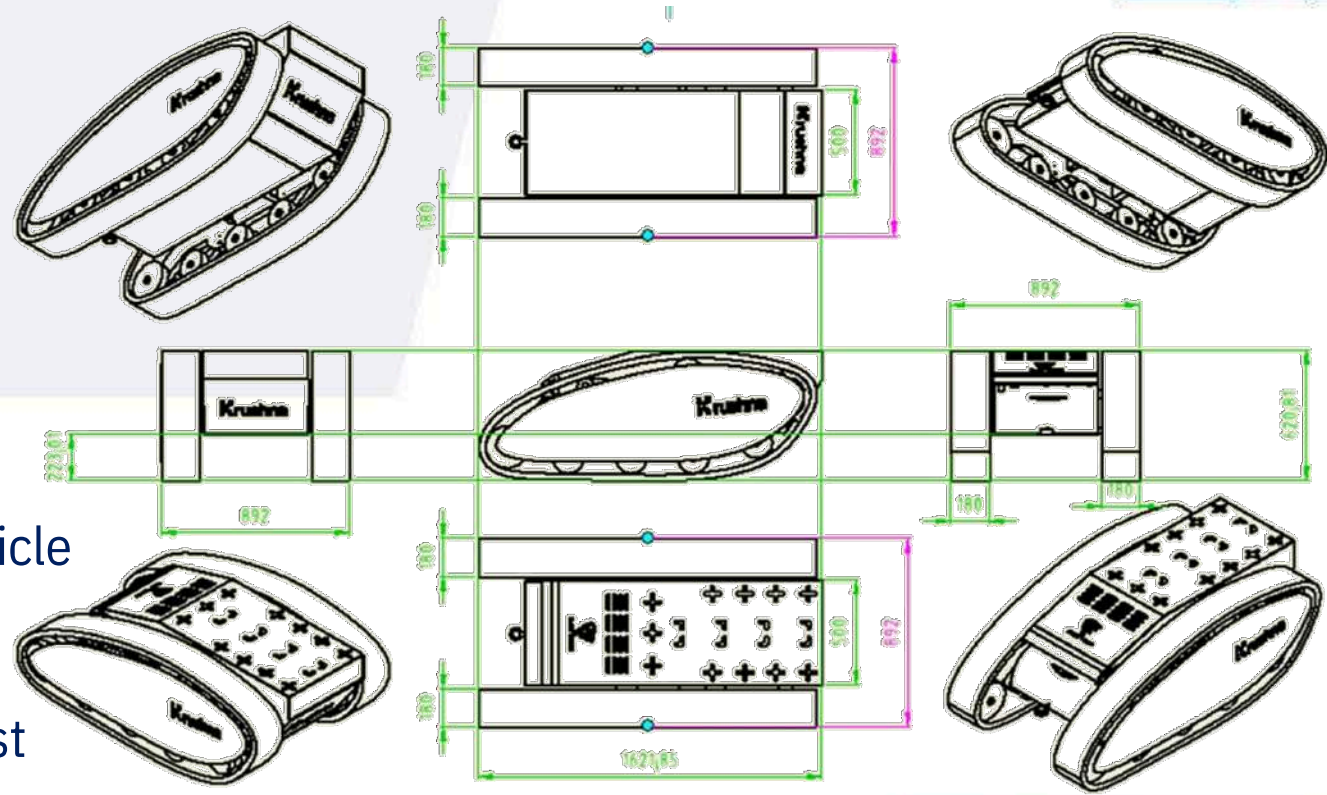
## NIRMAL TRADERS

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4/8 Near R.N. Tagore Public School, Nanak Nagar, Jammu

# ATV Chassis

- KRUSHNA™ World's Most powerful ATV Robot
- LXWXH 1668X 890 X 650, Weight 452Kg
- Body shell material SS 314
- World's Most Power full ATV For Defense
- Payload Up to 1000 Kg & Drag Up TO 10 Ton of vehicle
- True ATV 52° Slope, Up to 28 Cm of Stage
- Single Board Control System, Make In India
- 35 MM Iron Core rubber track, most rugged & robust
- Temperature range up to 500° self cooling



# NIRMAL TRADERS

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# Water Monitor

<b>Material</b>	<b>SS-316 Grade</b>
<b>Inlet</b>	<i>BIS Type 2 No's of 63 mm instantaneous male coupling with a provision of single / dual inlet</i>
<b>Flow Rate</b>	<i>2200 lpm @ 8 kg/cm<sup>2</sup>.</i>
<b>Throw Range</b>	<i>Horizontal 75 m</i>
<b>Vertical movement</b>	<i>Vertical: -150 to 850 Horizontal: 1600 ( 800 Left &amp; Right From Centre)</i>
<b>Working Pressure</b>	<i>7 to 10 kg / cm<sup>2</sup></i>
<b>Discharge Modes</b>	<i>Jet, spray and combination of two. Automatic Oscillation: Preset of 300 ,600 and 850(150 ,300 and 450 left and right from center respectively)</i>
<b>Control Mode</b>	<i>Remote</i>



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# Thermal Camera Front Camera



## **Dual Camera**

### **Protection**

## **TERMAL & OPTICAL**

Electromagnetic compatibility of camera should be as follows ( minimum)- Anti surge 6 KV, Anti-static 8KV contact / 15 KV air

### **PTZ function**

Remote controlled zoom, 360 degree pan continuous rotation and 90 degree tilt.

### **Resolution**

a)The resolution of Thermal imagine camera is 1920 ×

1080

b)The resolution of Optical camera is 2592 × 1520.

### **Wiper**

Automatic Wiper available

### **Artificial Intelligence**

a)Human detection up to 2000 M b)Fire point Detection up to 3000M

c)Object tracking and engagement with PTZ follow up

d)Fire detection alarm with tweeter

e)Hot spot tracking is available

### **Portability**

Camera is portable

### **Front Camera**

Wide angle front camera



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# Remote Contro



**Weight**

**1000 Grams**

**Range**

2500 meter

**Frequency**

2.4 Ghz and 5 Ghz ( DUAL)

**Display size**

7 Inch

**Display resolution**

1280\*720 High Definition

**Battery**

Integrated Rechargeable battery

**Battery back up**

5 Hours

**In system display**

- a) Display of all cameras with selection switch
- b) Battery level percentage
- c) Display of front wide angle camera

**Controls/ Switches**

All controls integrated in single unit as follows

- a) Controls for maneuvering of the unit.
- b) Controls for movement of water monitor.
- c) Controls for jet/spray mode of water monitor.
- d) Controls for pre-set horizontal oscillation of water monitor with sweeping ranges of 30o, 60o & 90o
- e) Control of PTZ of camera
- f) Control of Water curtain, siren, lights etc.

**Video Recording**

Video recording available

**Ground Control Station Function**

Available for video streaming and broadcasting



# Rubber Track & Sustainability



## **RUBBER TRACK**

### **Material**

*Iron core meshed synthetic rubber polymer 180 MM 35 MM 25 MM 3500MM*

### **Width of track**

**500 degree with water curtain up to 4 Hours**

### **Thickness**

*Suspensions Provided, with integrated bearing frame*

### **Cast Iron Core**

*10 Ton vehicle in neutral gear position, 100M*

### **Circumference**

*Charged hose pipe (2 Numbers @ pressure of 7KGCM2)*

### **Temperature**

*1000 Kg*

### **Suspension**

*25cm vertical height at 40Degree Angle*

### **Drag Capacity**

*Provided Provided with manual switch SKID*

*STEER (Gyro Based on axis 360R°otation)*

### **Payload Capacity**

*Integrated single drive controller for BLDC MOTORS, WATER MONITOR, CAMERA, CAMERA PTZ, LIGHTS, SIREN, CHARGING.*

### **Stairs climbing capacity**

### **Towing Hook**

### **Start Mechanism**

### **Steering of the unit**

### **Drive Controller MAKE (CLUB FIRST)**





# Experience

# Fire fighting Robot

<b>Delhi Fire Service</b>	<b>18 Unit</b>
<b>Odisha Fire Service</b>	<b>24 UNIT</b>
<b>Ahmedabad Municipal Corporation</b>	<b>2 Unit</b>
<b>Vadodara Municipal Corporation</b>	<b>1 Unit</b>
<b>Surat Municipal Corporation</b>	<b>2 Unit</b>



# Utilization

## Fire fighting Robot

- Gazipur delhi: utilise at at delhi's ghazipur landfill site fire
- on 12 june 2023
- Massive fire breaks out at shoe factory in delhi's peeragarhi & fire fighting done by mini robot on 12 oct 2023
- Rohani delhi: old go down fire where old shelter collapsed and fire fighting done by XENA™ 5.0 robot
- G20: Mini robots at G-20 venue: Delhi fire dept. Keeps preparation for safety.
- VADODRA Oil massive fire

