



**REGONA**  
MANUFACTURING

**WELCOME**

2025/08/22

THE UAV HELICOPTER GEARBOX AND  
MUFFLER SYSTEM DESIGN PROJECT  
DEVELOPMENT PRESENTATION

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**Wesrihan  
Park**  
Blok A 160

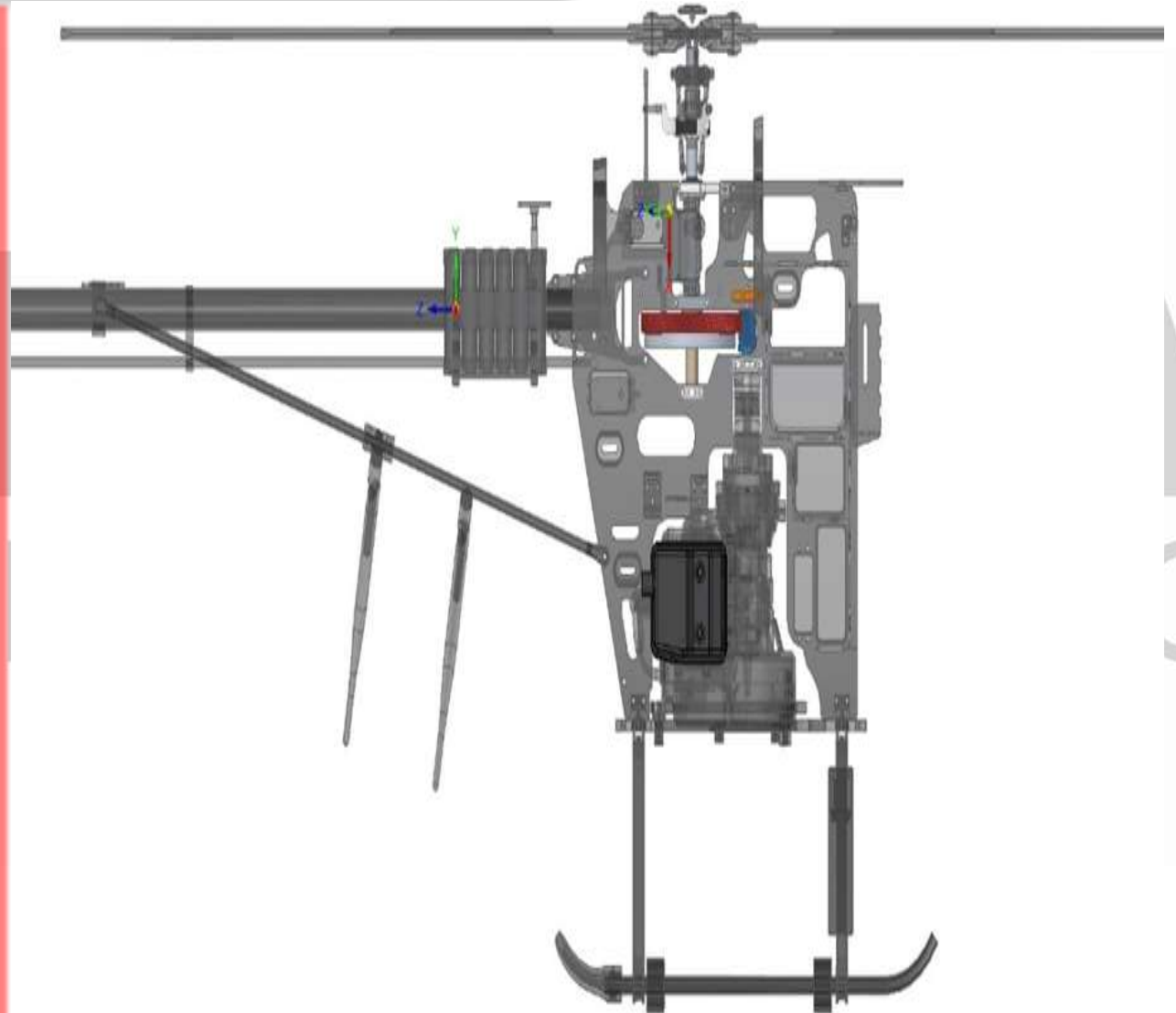
**SOLVING COMPLEX  
GEOSPATIAL PROBLEMS**





## BACKGROUND

- **Regona Trading (Pty) Ltd t/a Regona Manufacturing** We are classified as a Micro Enterprise (SMME)The company is Woman-owned, Black and Youth.
- **Regona's expertise in material handling, engineering development, fabrication, and assembly, augmented by strategic partnerships, uniquely positions us to address the development and machining project to enhance the capability of a locally designed and developed UAV Helicopter with advanced mapping and aerial surveying, providing precise and cost-effective geospatial insights in industry-standard formats.**
- **The UAV helicopter is locally designed with South African Civil Aviation Authority (SACAA) approval. Equipped with high-resolution cameras, multispectral or video, and Lidar which can conduct detailed surveys of mining sites, forestry, security, defense and agricultural area.**



## FOCUS AREAS

### SUSTAINABILITY AND SOCIAL IMPACT

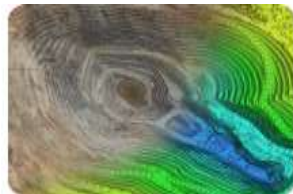
- The increased payload will enhance the detailed surveys conducted of mining sites, forestry and agricultural areas by means of increased sensor combinations and time required to capture data.
- The data supports the producers in the agricultural sector by providing early and accurate yield predictions, on time and for planning the logistics of harvesting, storage, defense, security and sale.
- In forestry, this data enables comprehensive mapping and analysis of forest terrain, aiding in understanding the landscape, identifying features, and planning effective forestry management strategies. This enhances overall security in forested areas, prevents illegal logging, and ensures timely intervention.
- In the mining sector additional topographic mapping, detailed 3D models can be created through modern SFM (Structured from Motion) algorithms. Ultra-high-resolution imagery is used to create highly accurate and detailed 3D models for speedy and precise volume calculation.
- Skills transfer and training across the mining, forestry and agricultural sectors in the various aspects of UAV use and data capturing is a contributor to local human capital development.



AGRICULTURE



FORESTRY



MINING



CIVIL

### Speed

Max Speed: 25m/s

Cruise Speed: 15m/s

### Distance/Range

Range: 15-20km

### Load Capacity

3kg max

### Endurance

2 hours max flight time.

# AIMS OF THE PROJECT

## DESIGN AND DEVELOPMENT PROJECT

- **This proposal by Regona Manufacturing's is for a project with the aim of enhancing the capability of the UAV helicopter by means of:**
  - The design, develop and manufacture a unique intermeshing gearbox prototype. This gearbox will increase the payload capability of the UAV helicopter from 3kg to 15 kg.
  - Secondly, the redesign and manufacture of a prototype 2 stroke muffler. The noise reduction muffler will enhance the stealth capability of the UAV helicopter with the increased payload capability.

## INNOVATION/ORIGINALITY/CREATIVITY

- The unique intermeshing gearbox for the UAV helicopter will increase the payload capability significantly, by at least 400%.
- This will greatly improve the sensor combinations which the UAV can carry during a single mission, improving the time required to capture data and related operating costs.
- This enhanced payload capability will also be used in the future to transport payloads such as emergency medical supplies, emergency equipment etc during disaster operations.
- The redesigned 2 stroke muffler will enhance noise reduction, manage exhaust gas back pressure and flow this will optimise the stealth capability of the UAV helicopter during security missions (environmental asset management[coastal and inland], forestry and agricultural security).



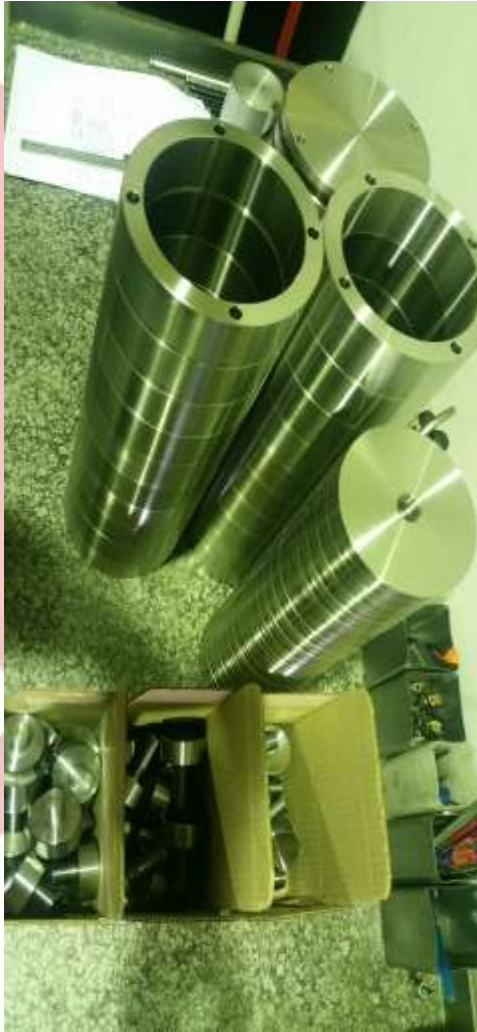


## CURRENT STATUS OF THE PROJECT

[illegible]



## OTHER PROJECTS





**Thank you**

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