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Cargo Screening Ferret

Tony Dodd



Overview

- User requirements update
- Data fusion update
- Sensors
- Robots



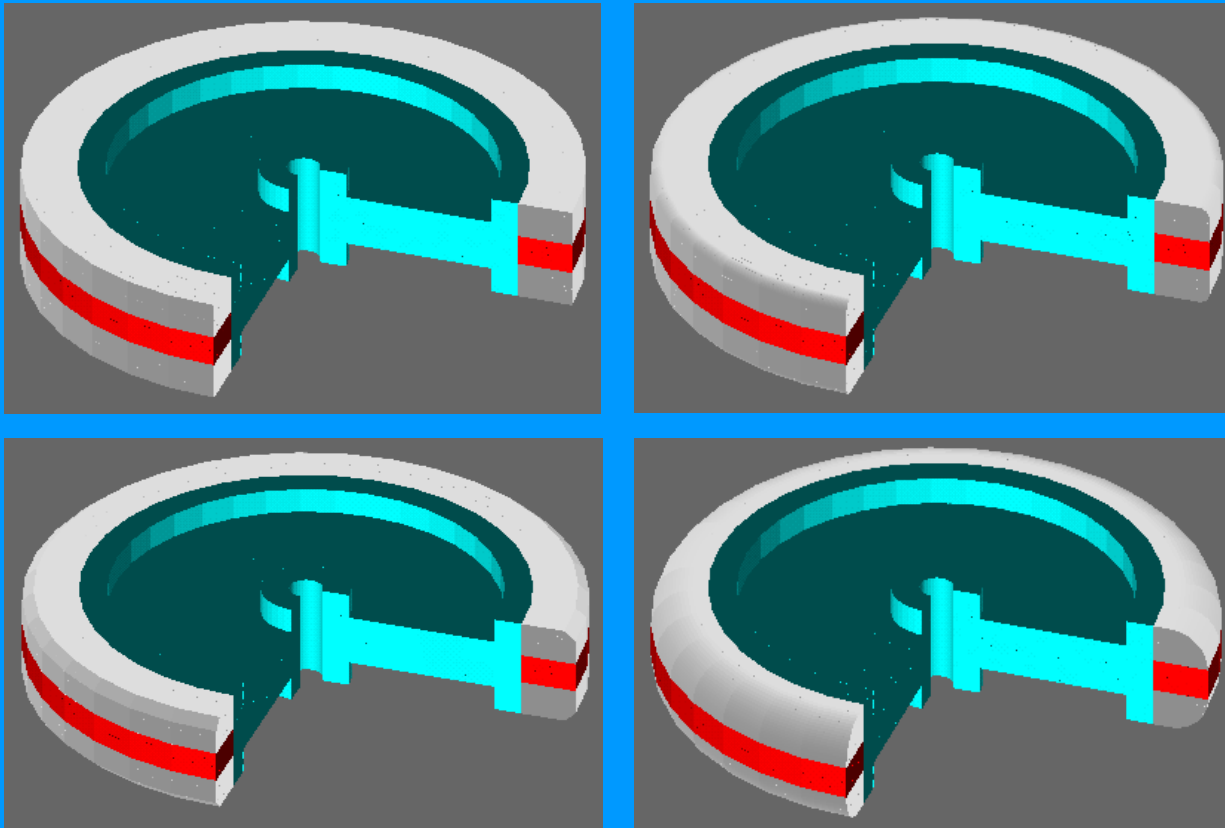
Cargo Screening

- Detect contraband in cargo containers
- Challenges – unknown, complex, confined space
- Solution – magnetic traction, highly flexible joints

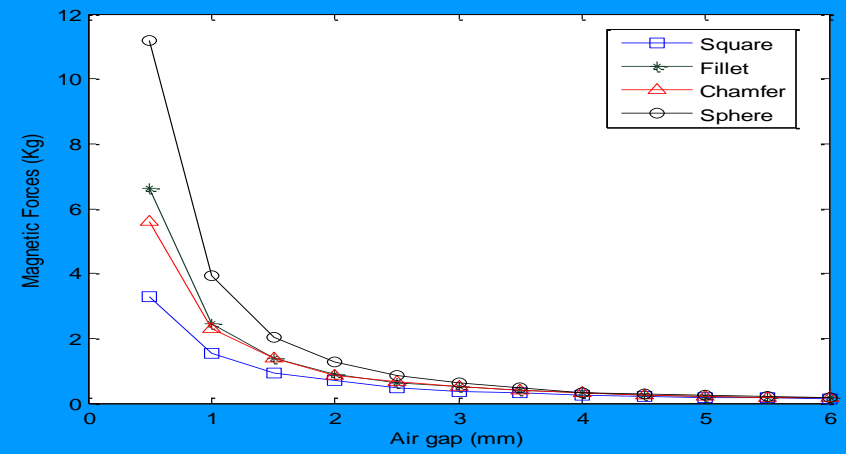
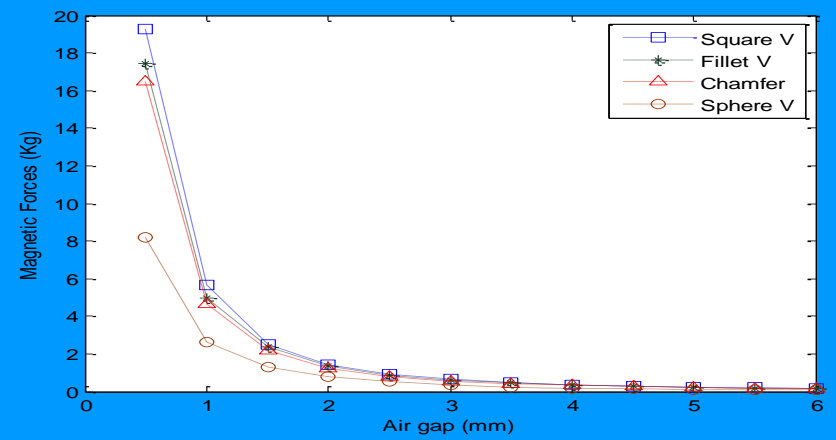
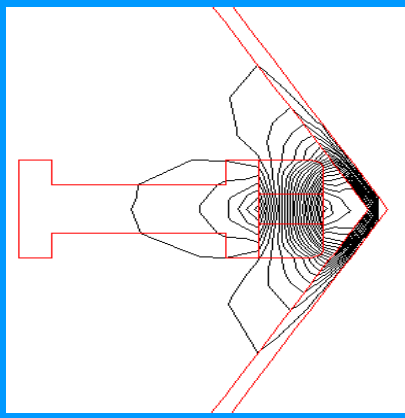
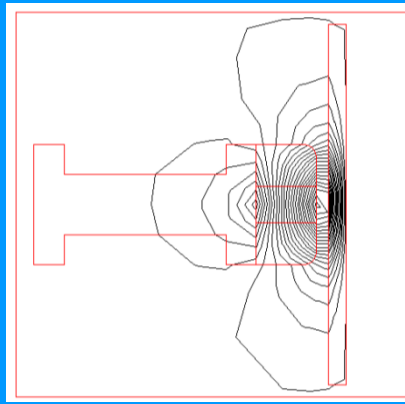




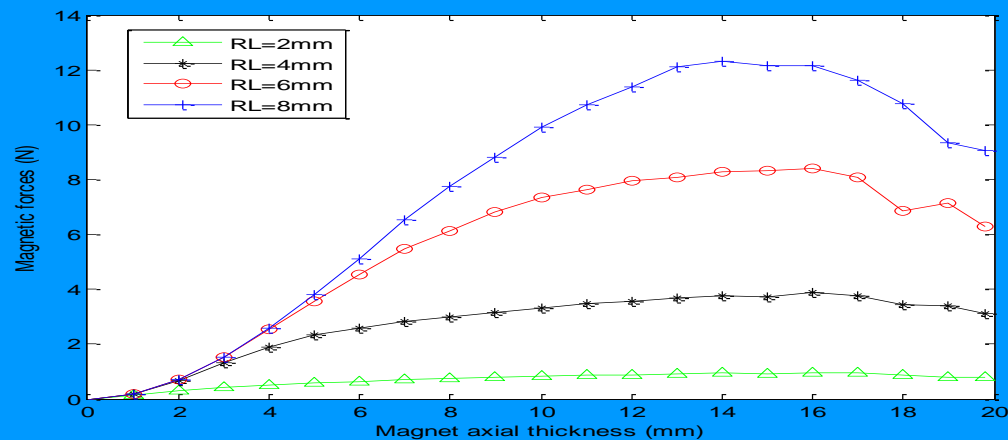
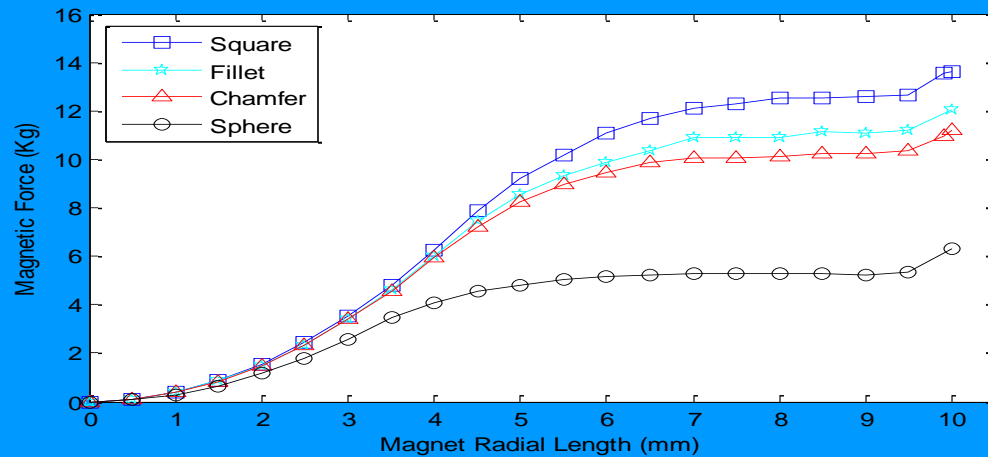
Magnetic Wheel Design



Magnetic Analysis – Edge Shapes



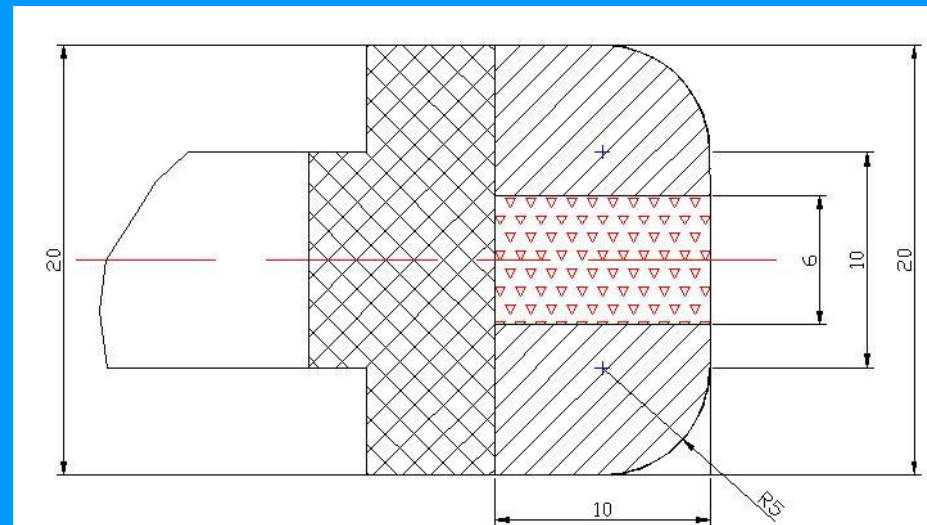
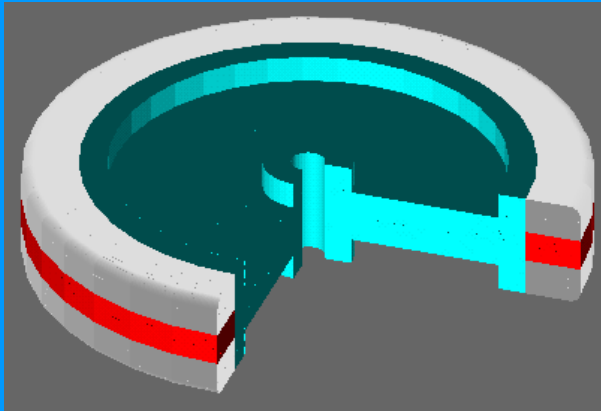
Magnetic Analysis – Magnet Size





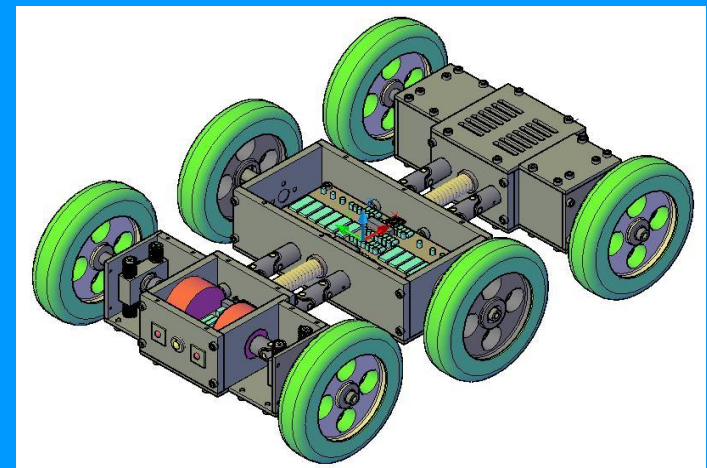
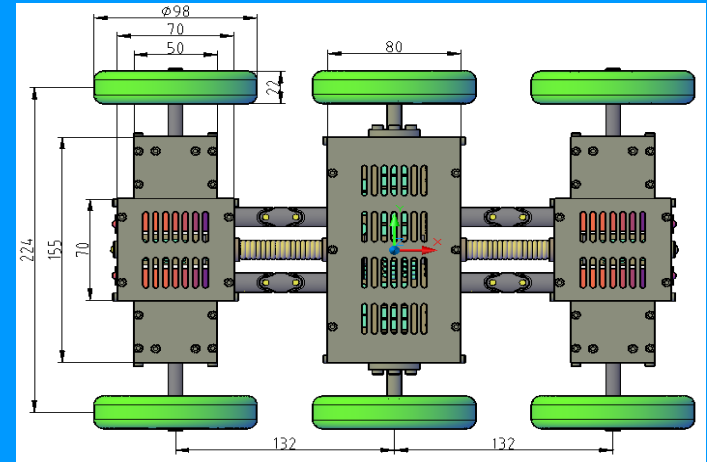
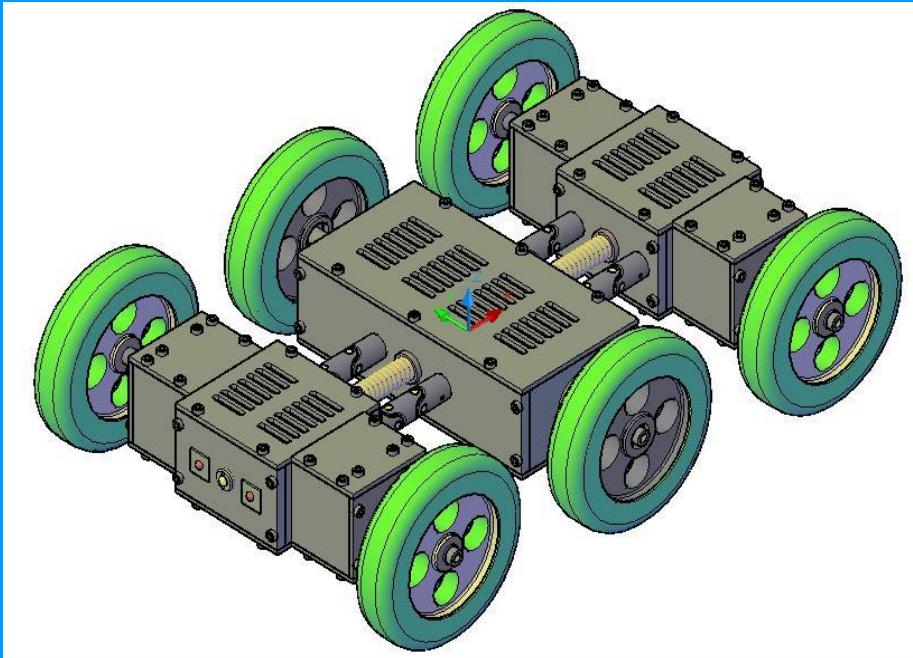
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Final Wheel Design



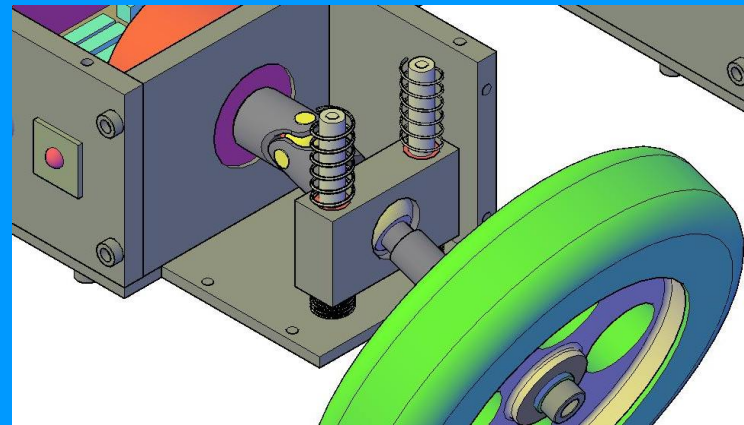
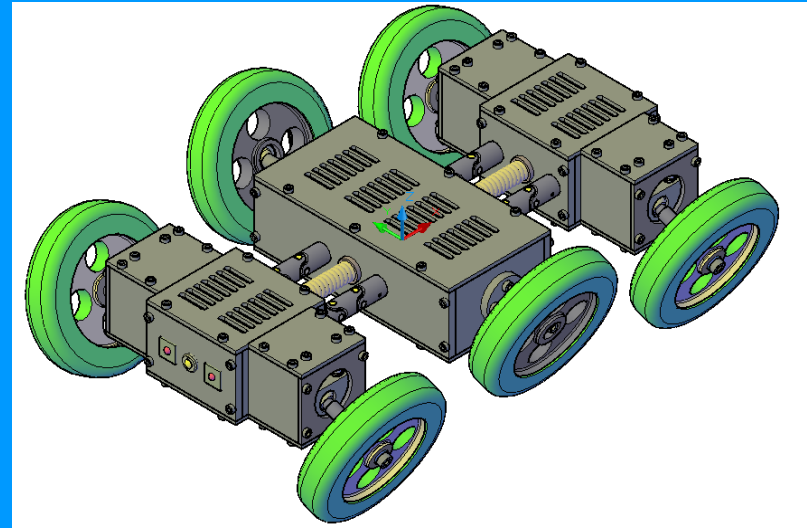
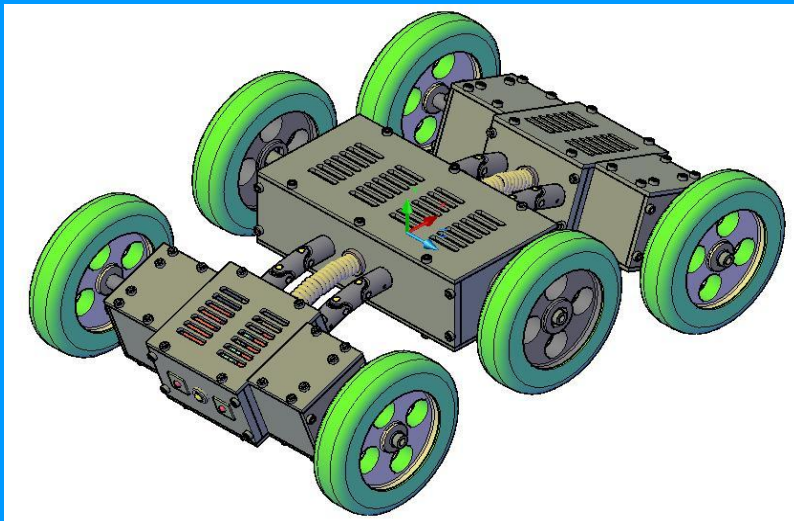


Vehicle Design





Flexible Joints





Search and Rescue

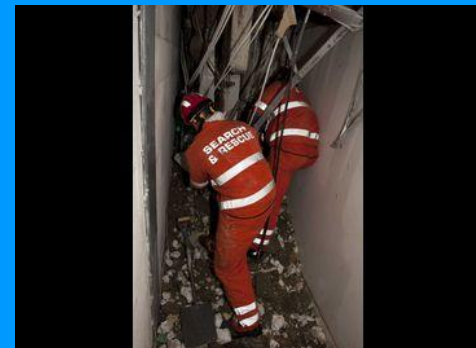
- Locating survivors, detecting gas leaks etc
- Dangerous, uncertain and highly complex terrain
- Solution: Variable geometry autonomous robot
- Tracked, invertible, robust



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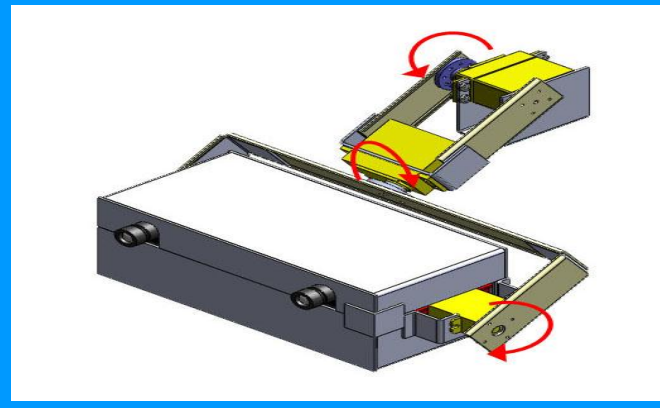
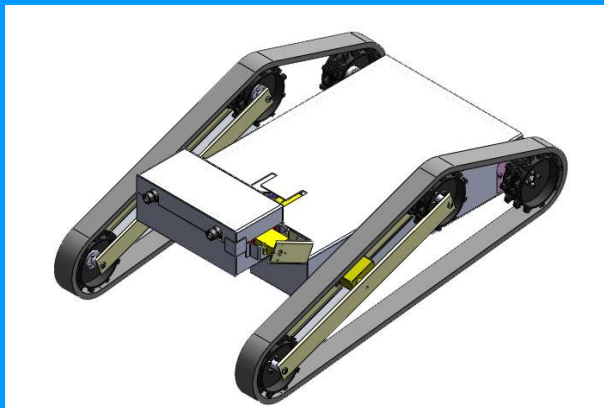
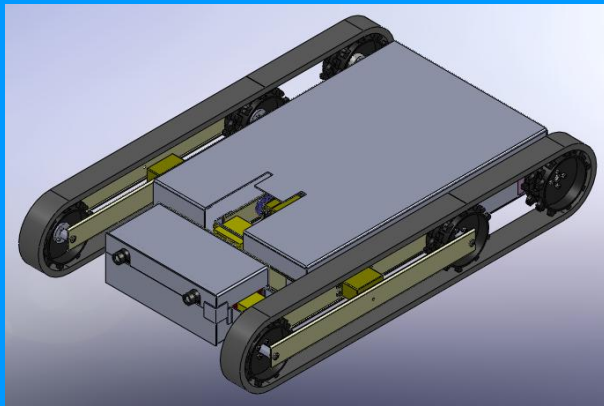


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Vehicle Design





Remaining Challenges

- Finalise vehicle designs
- Systems hardware – processors, sensors
- Systems integration
- Control – remote-operation/autonomy
- SLAM and navigation