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Modeling and Control of an Autonomous Tractor

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► **To cite this version:**

Stephane Victor, Pierre Melchior, Lukasz Mizgalski, Hugo Gimbert, Steve Nguyen. Modeling and Control of an Autonomous Tractor. Workshop Réseau Régional de Recherche en Robotique, Oct 2021, Bidart, France. hal-03548481

HAL Id: hal-03548481

<https://hal.science/hal-03548481>

Submitted on 30 Jan 2022

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MODELING AND CONTROL OF AN AUTONOMOUS TRACTOR

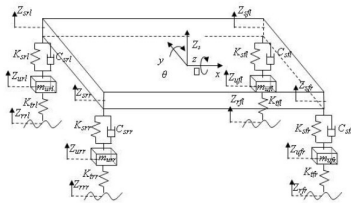
Lukasz MIZGALSKI, Stéphane VICTOR, Pierre MELCHIOR,
Hugo GIMBERT, Steve NGUYEN,

OBJECTIVES

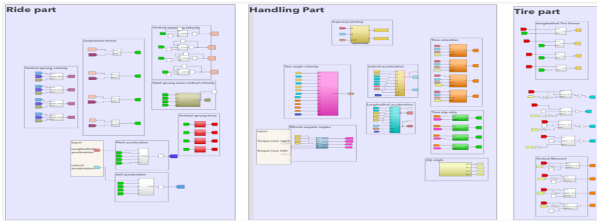
- **Modeling** for better simulation and Control System Design
- **Sense & Avoid**
- **Trajectory planning** and motion planning
- **Robust Control** for disturbance rejection, system uncertainties and path tracking
- **Optimization** for high performances and high efficiency

MODELING

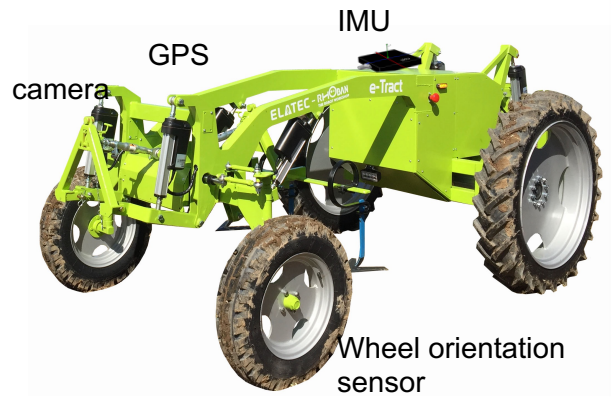
Analytical Model



Simulink Model

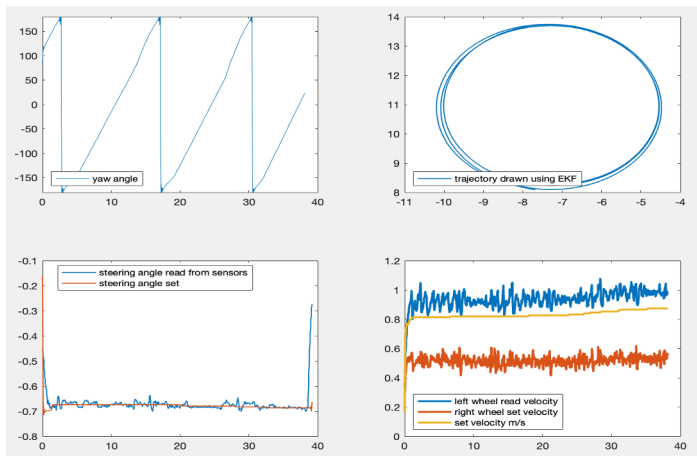


SENSE & AVOID

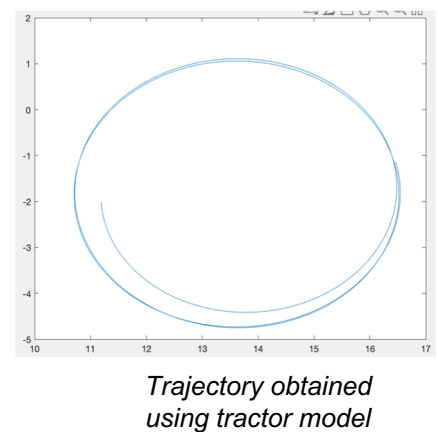


RESULTS : MODEL CALIBRATION

Calibration with E-Tract:



Motion planning:



CONCLUSION

- Operational model on simlulink
- Sensor modeling for E-Tract positioning and Sense&Avoid

PERSPECTIVES

- Trajectory planning
- Control System Design