

Master's thesis

Simulation of complex actuators

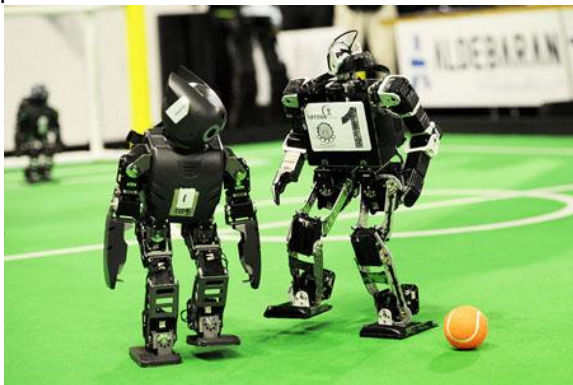
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Academic year 2015-2016

Context & Motivation

- todo :
- enlever le fond de l'image de conclusion
 - modifier le schéma bloc
 - ajouter TCP/IP au dessus de la flèche entre simulator et Controller

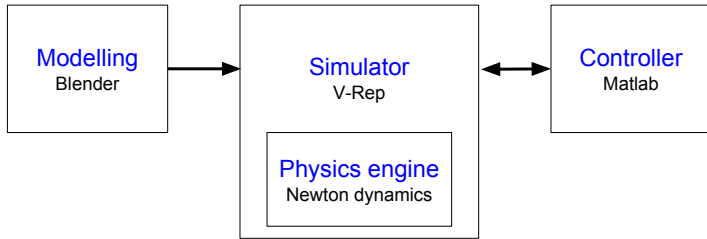


Problem statement

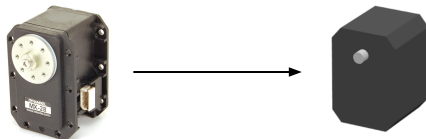
Goals

- ▶ realistic rigid bodies physics simulation
- ▶ constraints
- ▶ the model of the robot should be able to interpret the same instructions that the real robot will

Proposed environment



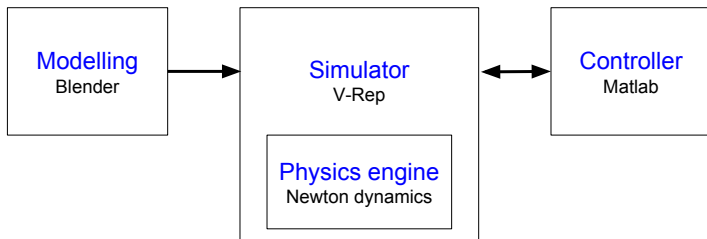
Modelling (1/2)



Problems :

- ▶ mass & inertia
- ▶ volume
- ▶ function
- ▶ constraints

Modelling (2/2)



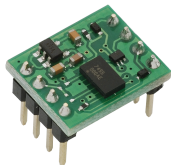
Blender :

- volume

V-Rep :

- mass & inertia
- function
- constraints

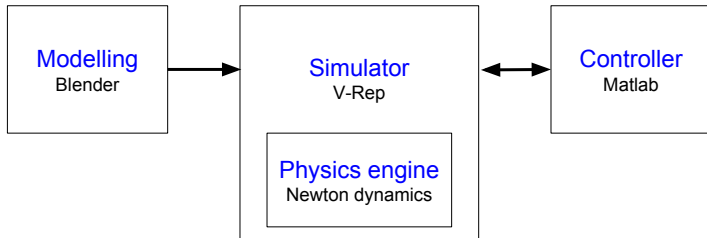
Control (1/2)



Problems :

- ▶ same orders as real robot
- ▶ retrieve state of simulation

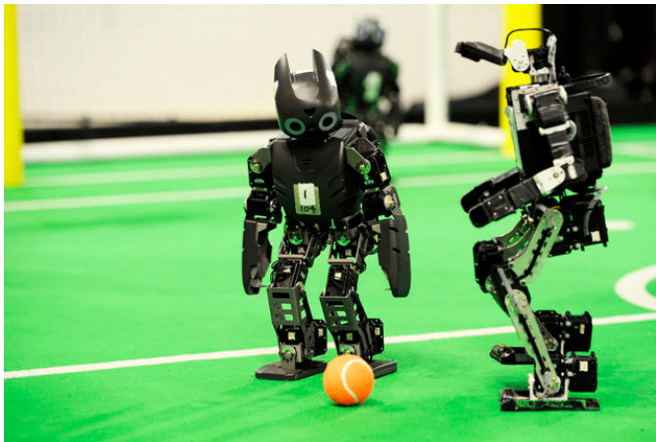
Control (2/2)



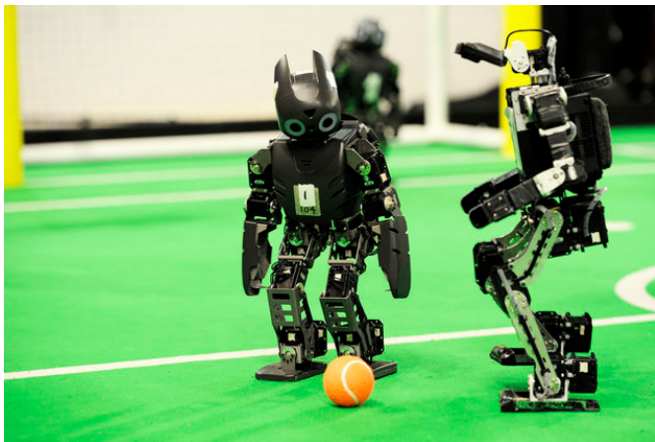
Solutions :

- ▶ remote control through TCP socket
- ▶ scripts

Applications (1/2)



Applications (2/2)



Conclusion

