Local Path Planning with Moving Obstacle Avoidance based on Adaptive MPC in ATLASCAR2

Tesi di Laurea in Ingegneria dell'Automazione

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15 Aprile 2019

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Figura 1: *ATLASCAR2 - Mitsubishi iMiEV elettrica del 2015*

Motivazione e Obiettivi della Tesi

Normal block

Fusce luctus venenatis felis quis semper

Alert block

$$E = (x_1 \vee \neg x_2 \vee \neg x_3) \wedge (x_1 \vee x_2 \vee x_4)$$

Example block

Proin tincidunt, neque at tincidunt mollis

Moving Obstacle Avoidance System

(sistema di anticollisione con ostacoli in movimento)

Formulazione del Problema

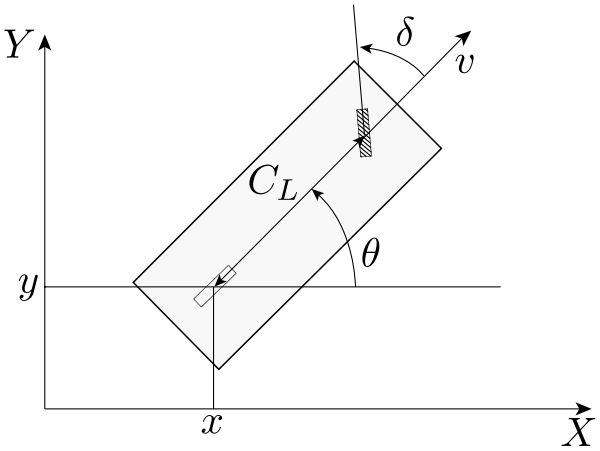

Figura 2: *Bicycle model.*

Quality of **reconstruction** is related to the number of cameras from which the target is visible. We assume that such number is more likely to be higher if the field-of-views are overlapped.

Design Adaptive MPC - parte 1

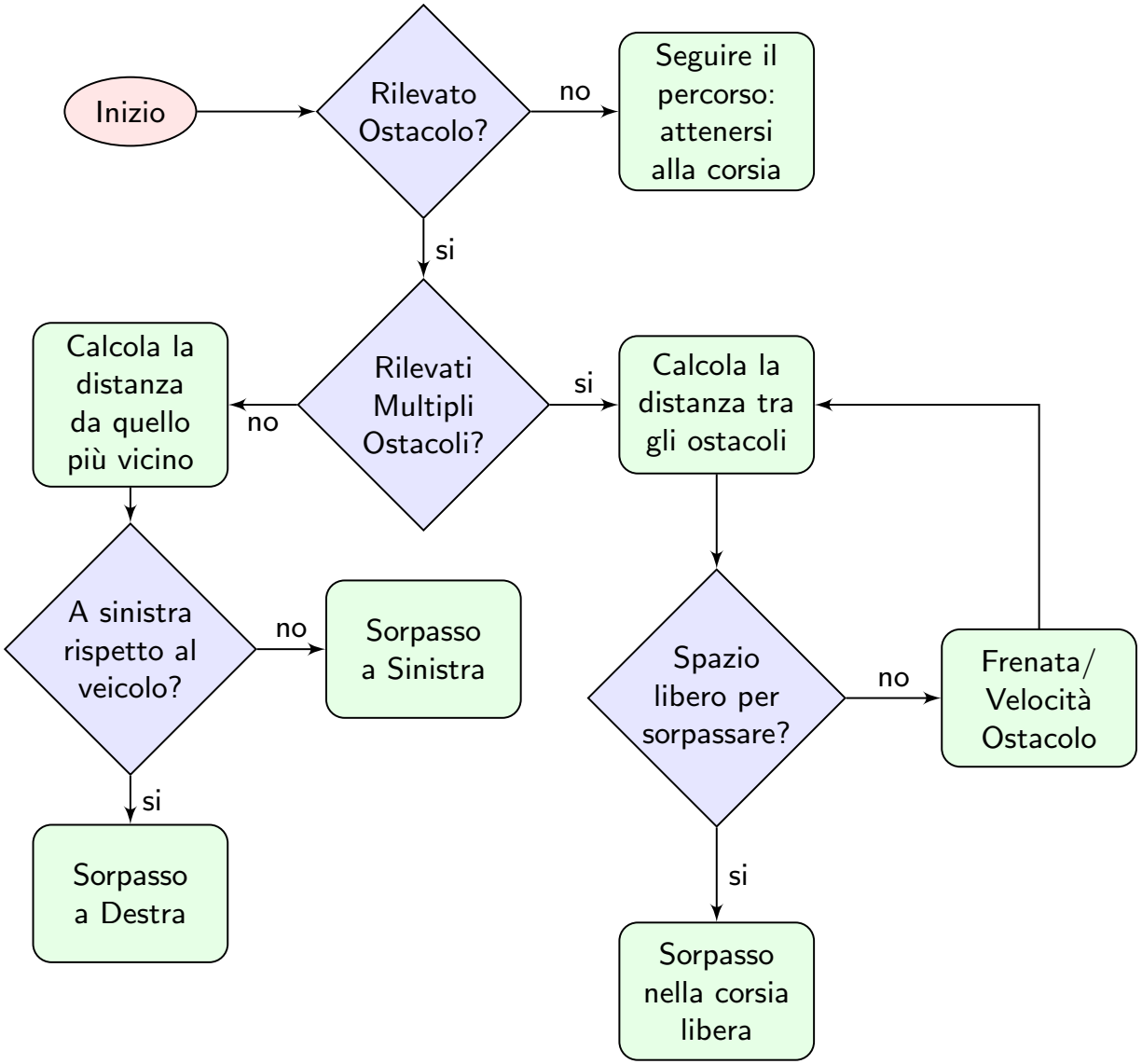

Figura 3: *Algoritmo decisionale.*

Quality of **reconstruction** is related to the number of cameras from which the target is visible. We assume that such number is more likely to be higher if the field-of-views are overlapped.

Design Adaptive MPC - parte 2

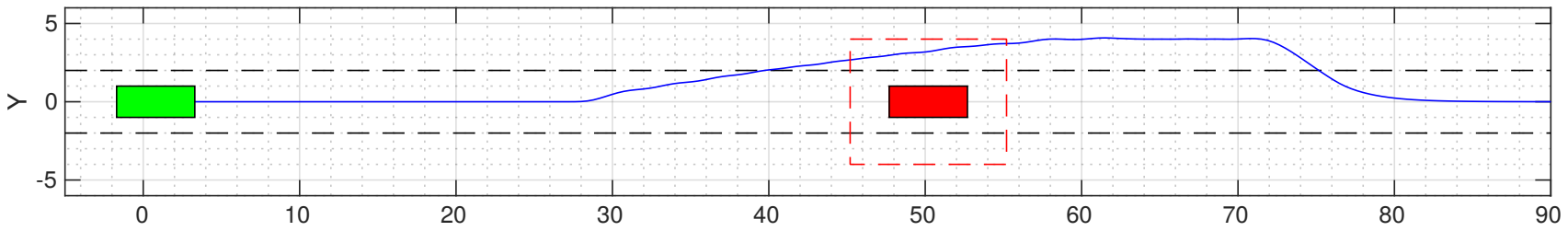

Figura 4: *Sorpasso a sinistra di un ostacolo in movimento (animazione).*

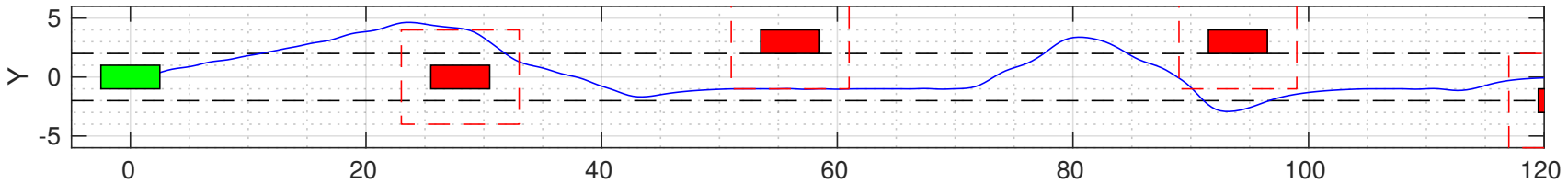

Figura 5: *Sorpasso di 6 ostacoli in movimento (animazione).*

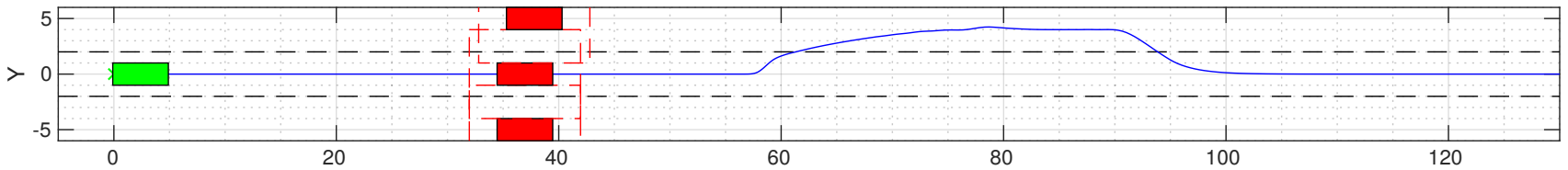

Figura 6: *Frenata e sorpasso di 3 ostacoli in movimento (animazione).*

Lane Following System

(sistema di assistenza al mantenimento della corsia)

Formulazione del Problema

Design Adaptive MPC

Risultati Simulativi

Conclusioni e Sviluppi Futuri

contenuto...