

Title (en)
A CENTRALIZED MODEL PREDICTIVE LIGHTING CONTROL METHOD AND A CENTRALIZED PREDICTION-BASED CONTROLLABLE STREET LIGHTING SYSTEM

Title (de)
VERFAHREN ZUR PRÄDIKTIVEN BELEUCHTUNGSSTEUERUNG MIT ZENTRALISIERTEM MODELL UND STEUERBARES STRASSENBELEUCHTUNGSSYSTEM AUF BASIS VON ZENTRALISierter VORHERSAGE

Title (fr)
PROCÉDÉ DE COMMANDE D'ÉCLAIRAGE PRÉDICTIF DE MODÈLE CENTRALISÉ ET SYSTÈME D'ÉCLAIRAGE PUBLIC CONTRÔLABLE BASÉ SUR UNE PRÉDICTION CENTRALISÉE

Publication
EP 4369866 A1 20240515 (EN)

Application
EP 22020553 A 20221114

Priority
EP 22020553 A 20221114

Abstract (en)
The present invention relates to a centralized model predictive lighting control method for one or more streetlamps and a system thereof, particularly to creating a lighting, which dynamically adjusts a light intensity thus improving a comfort level of visibility for vehicles, pedestrians, cyclist, etc., in variable weather conditions, while minimizing an energy consumption of a system simultaneously. The method predicts the light intensity at a predetermined set of points of interest p in a space over a prediction horizon N with a time resolution of $T_{s/s}$ and adjusts the light intensity of the streetlights according a predetermined streetlight dimming scenario and by implementing a Model Predictive Control (MPC) algorithm configured to control light intensities of one or more streetlamps. The MPC algorithm performs minimizing an objective function over the prediction horizon N with the time resolution of $T_{s/s}$, the objective function comprising calculating light intensity, light pollution, and deviation from the desired lighting at the predetermined set of points of interest p considering calculated constraints.

IPC 8 full level
H05B 47/105 (2020.01); **G05B 17/02** (2006.01); **H05B 47/115** (2020.01); **H05B 47/19** (2020.01)

CPC (source: EP)
H05B 47/105 (2020.01); **H05B 47/115** (2020.01); **H05B 47/19** (2020.01)

Citation (applicant)

- EP 2719258 A1 20140416 - KONINKL. PHILIPS NV [NL]
- US 2019008019 A1 20190103 - LE HÉNAFF GUY [CA], et al
- US 2016050397 A1 20160218 - DI GIAMBERARDINO MAURO [IT], et al

Citation (search report)

- [YA] US 2016150622 A1 20160526 - FLINSENBERG INGRID CHRISTIAN MARIA [NL], et al
- [YA] US 2022128206 A1 20220428 - WEITLANER ROBERT [AT]
- [T] ANONYMOUS: "Model predictive control - Wikipedia", 21 March 2017 (2017-03-21), XP055357288, Retrieved from the Internet <URL:https://en.wikipedia.org/wiki/Model_predictive_control> [retrieved on 20170321]

Cited by
EP4369867A1; WO2024104611A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4369866 A1 20240515; WO 2024104610 A1 20240523

DOCDB simple family (application)
EP 22020553 A 20221114; EP 2023025475 W 20231113