DIRECT TIRE WEAR CONTROL FOR AIRCRAFT

PRIORITY NUMBER:

102018000006348

KEYWORDS:

Anti-skid
Control system
Aircraft

Anti-skid control system for aicraft (it could be also applied to nay wheeled-vehicle) that allows a direct regulation of the tire-wear. This is of particular interest in aircraft, in which all braking maneuvers occur with the anti-skid system in action, and in which the tire-wear is significant, and it is responsible of large mainteinance costs.

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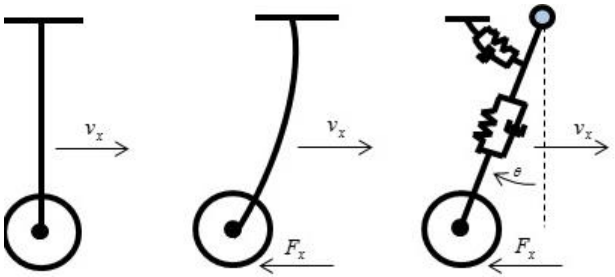
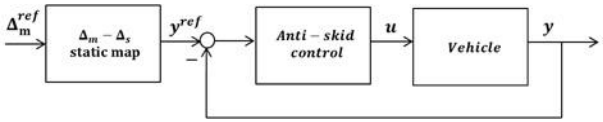


DESCRIPTION:

In the proposed idea the anti-skid controller is able to track a suitable reference value based upon which it is possible to select the level of exploitation of the available tire-road grip. This is done augmenting the available information to the anti-skid control logic which can be obtained by either increasing the number of sensors or introducing an estimation algorithm. Once the wheel slip can be estimated and thus regulated with the anti-skid controller, it is possible to define a static correlation between tire wear level and slip set-point. In other words, based upon a properly designed static map, one is able to choose the desired trade-off between tire-wear (quantified as tire mass loss) and stopping distance, making it possible to directly specify a target loss of mass for the tires and perform a safe braking maneuver based on this requirement.



ADVANTAGES:

- It explicitly takes into account the phenomenon of tire wear during the braking maneuver e
- Tire wear is assessed ex post;
- No information on road conditions is required as it only requires the measurement of wheel speed.

APPLICATIONS:

- Software for anti-skid control for aircraft.