

ABSTRACT

CAMERA SYSTEMS USING FILTERS AND EXPOSURE TIMES TO DETECT FLICKERING ILLUMINATED OBJECTS

The technology relates to camera systems for vehicles having an autonomous driving mode. An example system includes a first camera mounted on a vehicle 100 in order to capture images of the vehicle's environment. The first camera 300 has a first exposure time and being without an ND filter. The system also includes a second camera 350 mounted on the vehicle in order to capture images of the vehicle's environment and having an ND filter. The system also includes one or more processors configured to capture images using the first camera and the first exposure time, capture images using the second camera and the second exposure time, use the images captured using the second camera to identify illuminated objects, use the images captured using the first camera to identify the locations of objects, and use the identified illuminated objects and identified locations of objects to control the vehicle in an autonomous driving mode.

FIGURE 3B