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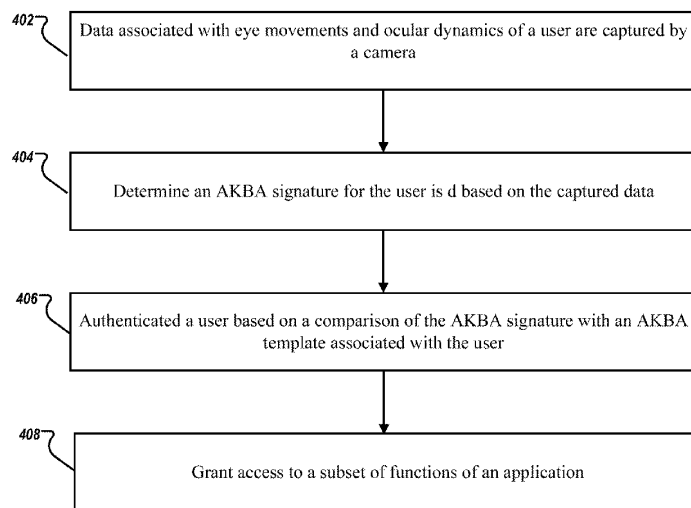


FIG. 4



(57) Abstract: Methods, systems, and apparatus, including computer programs encoded on a computer storage medium, for authenticating a user based on passive affective and knowledge-based authentication (AKBA). In one aspect, a method includes data associated with eye movements and ocular dynamics of the user are captured with a camera as the user looks at a graphical user interface (GUI) of a device; an AKBA signature of the user is determined based on the captured data; the user is authenticated based on a comparison of the AKBA signature with an AKBA template associated with the user; and an access to a subset of functions of an application is granted.

[Continued on next page]

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