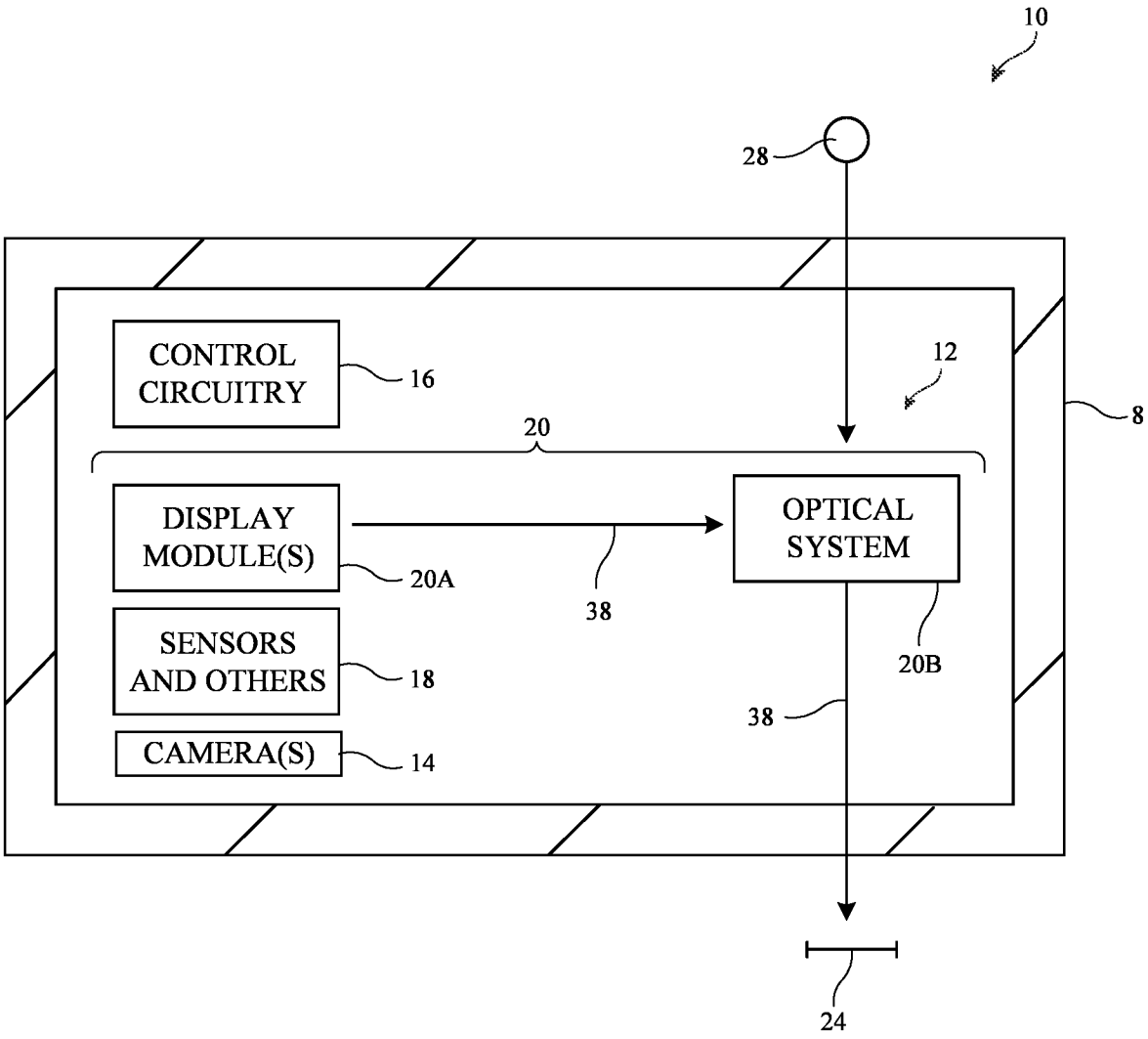

10
28
CONTROL CIRCUITRY
16
12
8
20
DISPLAY MODULE(S)
20A
38
OPTICAL SYSTEM
20B
SENSORS AND OTHERS
18
38
CAMERA(S)
14
24

*FIG. 1*

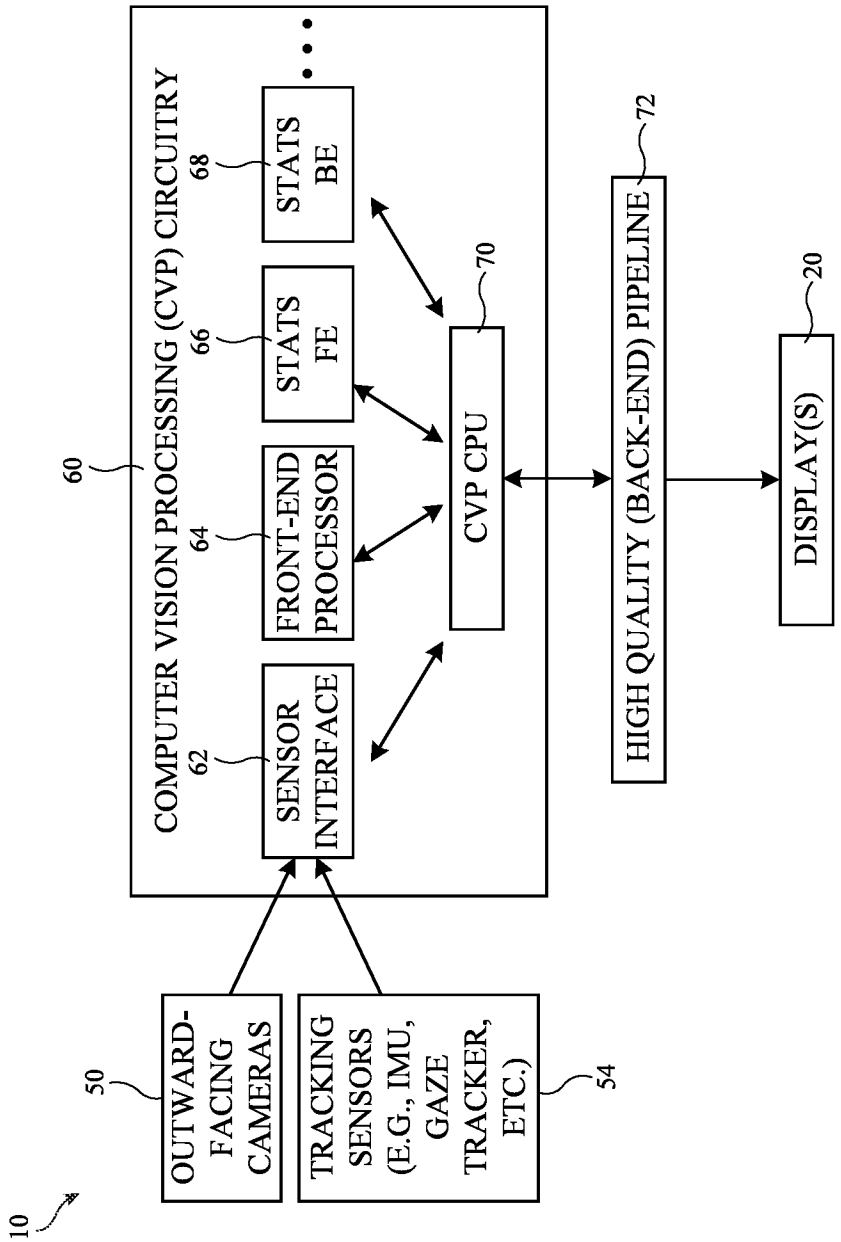

10
OUTWARD-FACING CAMERAS
50
TRACKING SENSORS (E.G., IMU, GAZE TRACKER, ETC.)
54
COMPUTER VISION PROCESSING (CVP) CIRCUITRY
60
SENSOR INTERFACE
62
FRONT-END PROCESSOR
64
STATS FE
66
STATS BE
68
CVP CPU
70
HIGH QUALITY (BACK-END) PIPELINE
72
DISPLAY(S)
20

*FIG. 2*

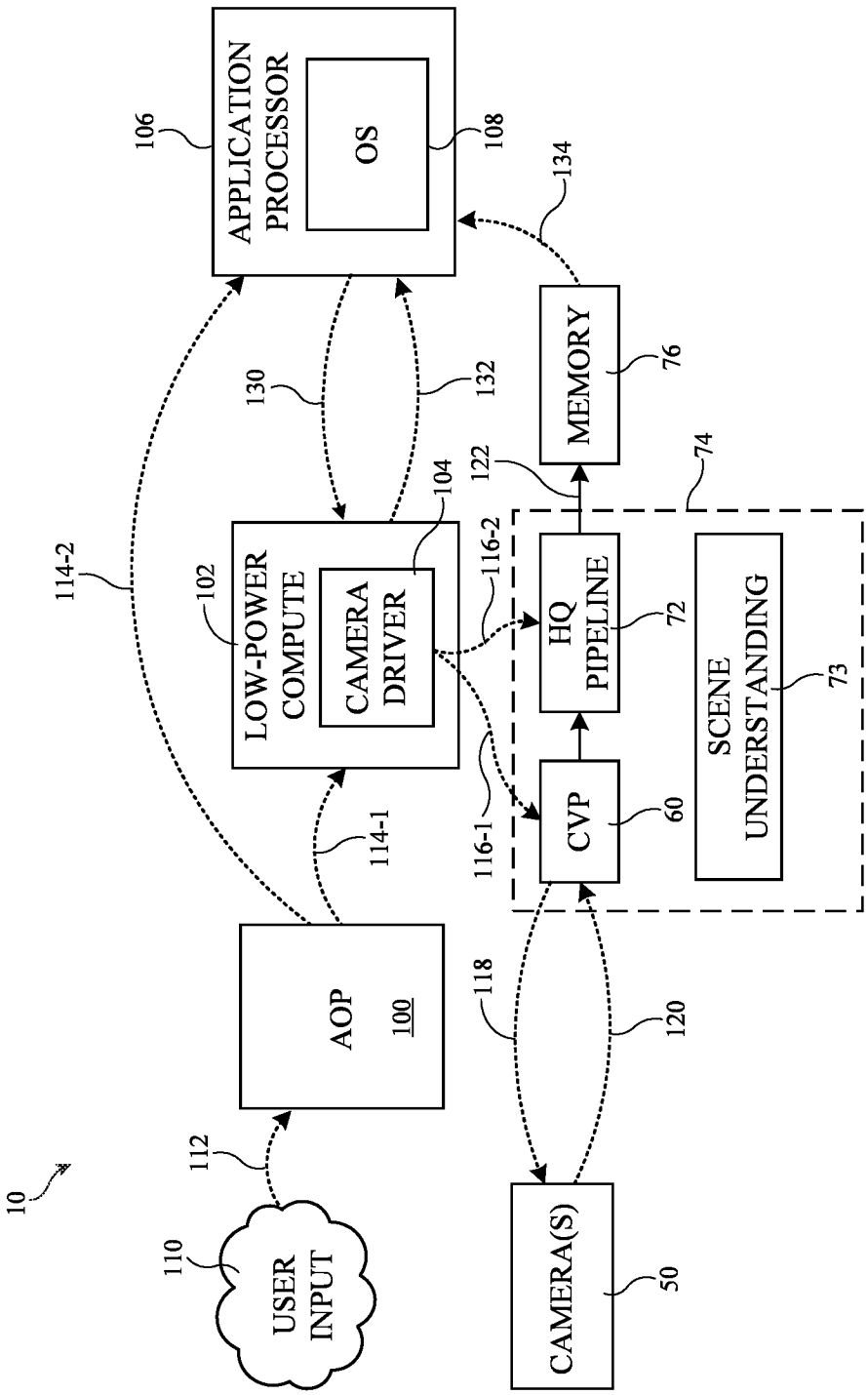

10
10
APPLICATION PROCESSOR
OS
106
108
134
MEMORY
76
130
132
122
74
114-2
LOW-POWER COMPUTE
CAMERA DRIVER
102
104
116-2
HQ PIPELINE
72
SCENE UNDERSTANDING
73
116-1
CVP
60
114-1
AOP
100
118
120
112
USER INPUT
110
CAMERA(S)
50

*FIG. 3*

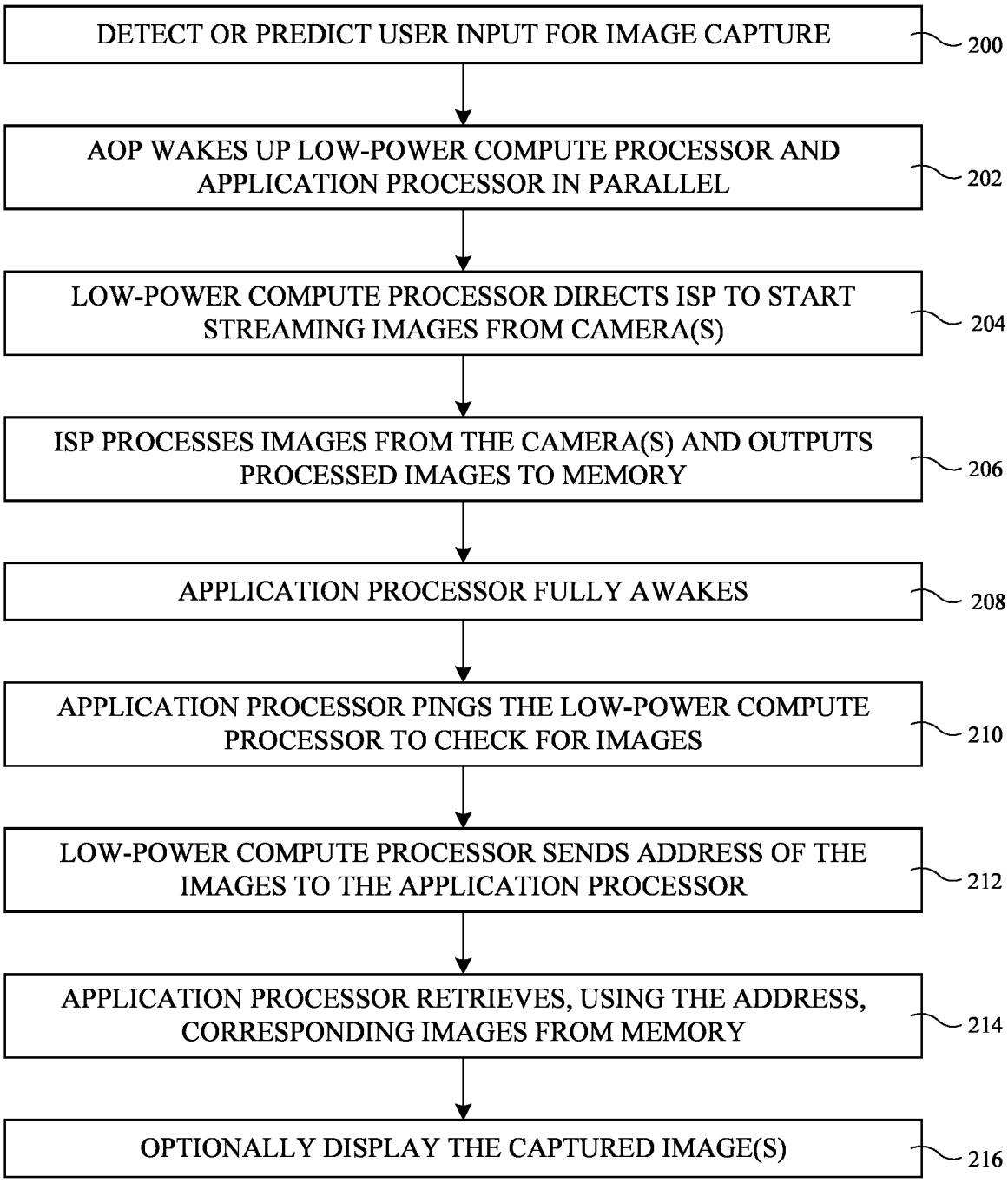

DETECT OR PREDICT USER INPUT FOR IMAGE CAPTURE
200
AOP WAKES UP LOW-POWER COMPUTE PROCESSOR AND APPLICATION PROCESSOR IN PARALLEL
202
LOW-POWER COMPUTE PROCESSOR DIRECTS ISP TO START STREAMING IMAGES FROM CAMERA(S)
204
ISP PROCESSES IMAGES FROM THE CAMERA(S) AND OUTPUTS PROCESSED IMAGES TO MEMORY
206
APPLICATION PROCESSOR FULLY AWAKES
208
APPLICATION PROCESSOR PINGS THE LOW-POWER COMPUTE PROCESSOR TO CHECK FOR IMAGES
210
LOW-POWER COMPUTE PROCESSOR SENDS ADDRESS OF THE IMAGES TO THE APPLICATION PROCESSOR
212
APPLICATION PROCESSOR RETRIEVES, USING THE ADDRESS, CORRESPONDING IMAGES FROM MEMORY
214
OPTIONALLY DISPLAY THE CAPTURED IMAGE(S)
216

*FIG. 4*

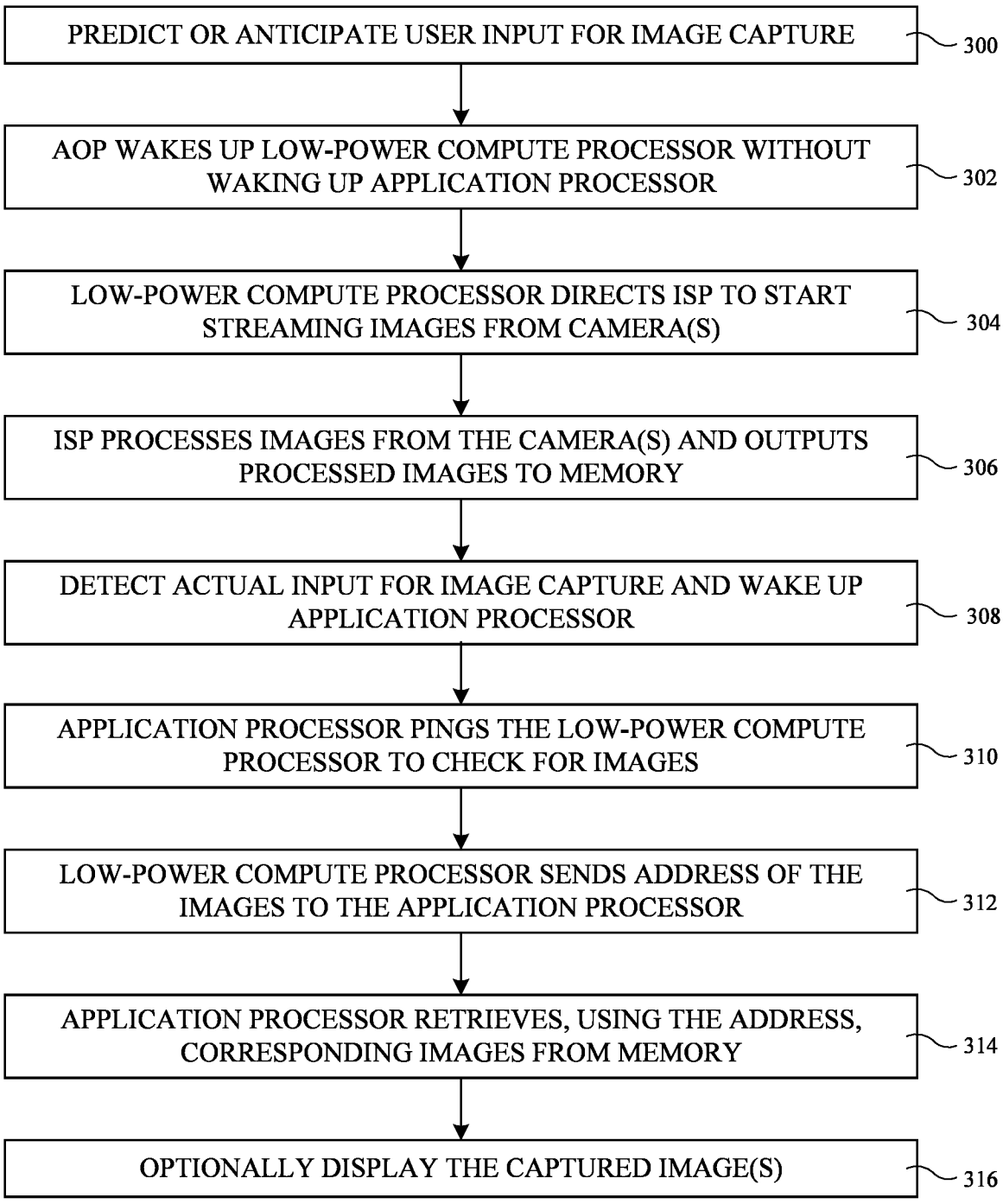

PREDICT OR ANTICIPATE USER INPUT FOR IMAGE CAPTURE
300
AOP WAKES UP LOW-POWER COMPUTE PROCESSOR WITHOUT WAKING UP APPLICATION PROCESSOR
302
LOW-POWER COMPUTE PROCESSOR DIRECTS ISP TO START STREAMING IMAGES FROM CAMERA(S)
304
ISP PROCESSES IMAGES FROM THE CAMERA(S) AND OUTPUTS PROCESSED IMAGES TO MEMORY
306
DETECT ACTUAL INPUT FOR IMAGE CAPTURE AND WAKE UP APPLICATION PROCESSOR
308
APPLICATION PROCESSOR PINGS THE LOW-POWER COMPUTE PROCESSOR TO CHECK FOR IMAGES
310
LOW-POWER COMPUTE PROCESSOR SENDS ADDRESS OF THE IMAGES TO THE APPLICATION PROCESSOR
312
APPLICATION PROCESSOR RETRIEVES, USING THE ADDRESS, CORRESPONDING IMAGES FROM MEMORY
314
OPTIONALLY DISPLAY THE CAPTURED IMAGE(S)
316

*FIG. 5*

Methods of Triggering Waking of Low-Power Compute Processor

- IMU to detect motion pattern indicative of user attempting to press camera button
- Microphone to detect voice command or other phrase indicative of user planning to take a photo or ask a question about something in scene
- Gaze sensor to detect gaze trajectory towards a gaze capture button
- Wide or context vision camera to detect scenarios in which user is likely to take a photo

⋮

*FIG. 6*