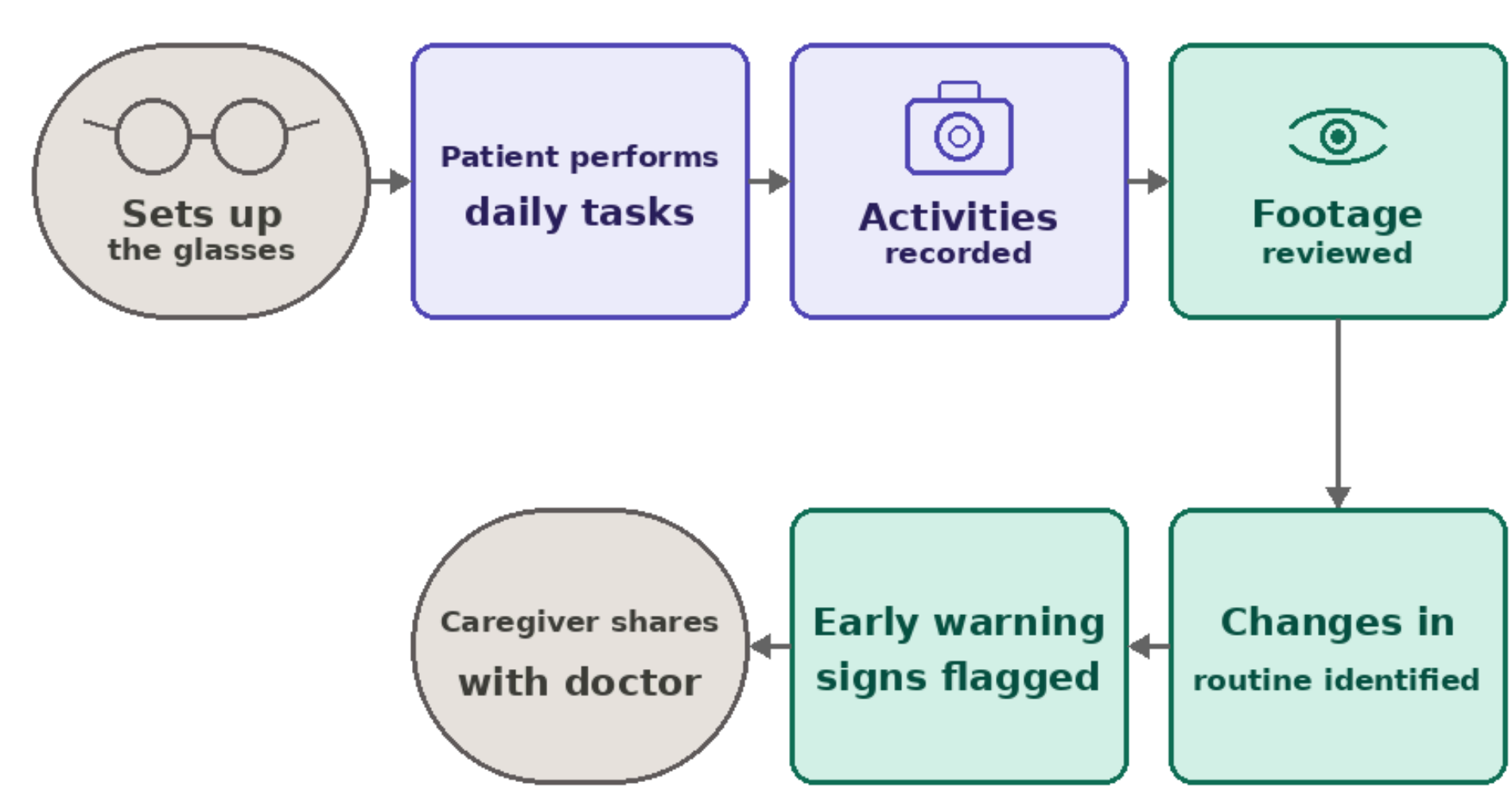
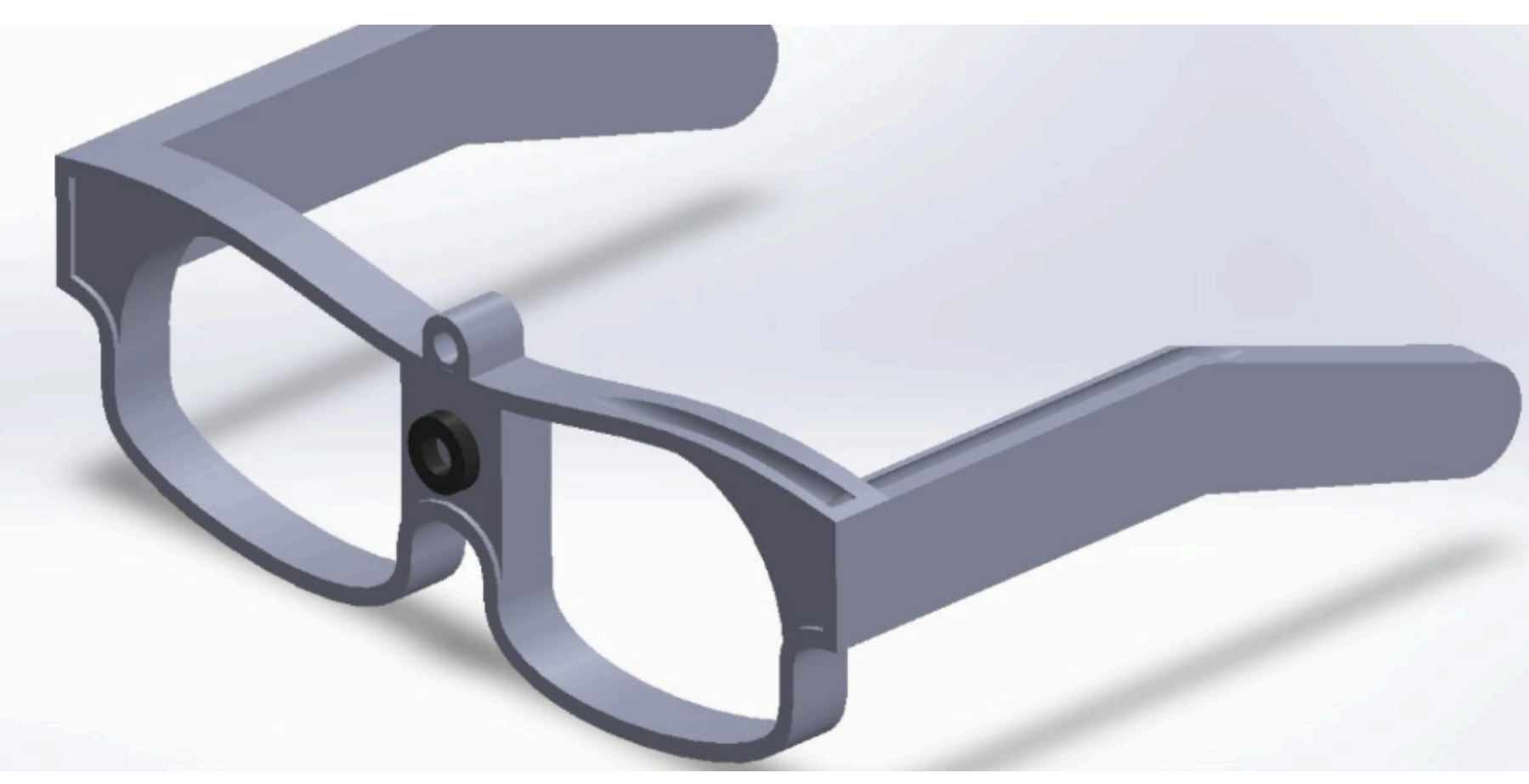


# Egocentric Vision Prototype For Early Alzheimer's Detection In Latin America: A Caregiver Tool For IADL Assessment

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Egocentric vision enables caregivers to objectively track IADLs, supporting earlier Alzheimer’s detection in resource-limited Latin American settings.

| INTRODUCTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | METHODS                                                                                                                                                                                                                                                                                                                                                                                                                     | CONCLUSIONS                                                                                                                                                                                                                                                                                                                                                                                                                                          | REFERENCES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>In Latin America, Alzheimer’s care is primarily a family responsibility, reflecting strong cultural values [1]. With public long-term care services reaching only ~1% of older adults [2], the burden often falls on women, limiting their ability to support children’s education. Unlike Europe, the United States, or Canada, where institutional care is more common [1][2], informal caregiving predominates. This reliance complicates early detection, as caregivers depend on memory and subjective observation of instrumental activities of daily living (IADLs). Subtle IADL impairments frequently mark disease progression [3], highlighting the need for objective assessment tools. Hand segmentation in egocentric video offers a cost-effective, non-invasive biomarker for early Alzheimer’s detection [4]. A low-cost prototype based on egocentric vision could provide continuous, objective monitoring, enabling caregivers to document changes and share evidence with physicians, thereby strengthening opportunities for timely diagnosis.</p> | <div><pre>graph LR; A((Sets up the glasses)) --&gt; B[Patient performs daily tasks]; B --&gt; C[Activities recorded]; C --&gt; D[Footage reviewed]; D --&gt; E[Changes in routine identified]; E --&gt; F[Early warning signs flagged]; F --&gt; G((Caregiver shares with doctor))</pre></div> <p>Figure 1. IADL Monitoring Workflow</p> | <p>The proposed prototype offers a promising way to objectively record activity interactions during IADLs tasks, producing visual data that would otherwise rely on caregiver’s memory and subjective observation. These recordings could enable caregivers to present concrete evidence to clinicians, facilitating earlier and more accurate Alzheimer’s diagnosis in settings where informal family caregiving is the primary support system.</p> | <p>[1] A. G. Elnasseh et al., “Family Dynamics and Personal Strengths among Dementia Caregivers in Argentina,” <i>Int. J. Alzheimers Dis.</i>, vol. 2016, pp. 1–10, 2016, doi: 10.1155/2016/2386728.</p> <p>[2] A. Ibáñez et al., “Dementia caregiving across Latin America and the Caribbean and brain health diplomacy,” <i>Lancet Healthy Longev.</i>, vol. 2, no. 4, pp. e222–e231, Apr. 2021, doi: 10.1016/S2666-7568(21)00031-3.</p> <p>[3] G. Cipriani, S. Danti, L. Picchi, A. Nuti, and M. D. Fiorino, “Daily functioning and dementia,” <i>Dement. Neuropsychol.</i>, vol. 14, no. 2, pp. 93–102, Jun. 2020, doi: 10.1590/1980-57642020dn14-020001.</p> <p>[4] E. Y. Babatope, A. A. Ramírez-Acosta, and M. S. García-Vázquez, “Relationship and impact of hand segmentation in IADLs for predicting Alzheimer’s disease,” <i>Alzheimer’s Dement.</i>, vol. 20, no. S2, p. e085259, 2024, doi: 10.1002/alz.085259.</p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>RESULTS</p> <div></div> <p>Figure 2. Prototype Design</p>                                                                                                                                                                                                                                                                            | <p>Acknowledgements</p> <p>This research is being supported by IPN-SIP2025-IND-SIP2026 and SECIHTI.</p> <div></div>                                                                                                                                                                                                                                             | <p>CONTACT</p> <div></div> <div><ul style="list-style-type: none"><li>• karladdelmoral@gmail.com</li><li>• eyemisi@citedi.mx</li><li>• msarai@ipn.mx</li></ul></div> <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |