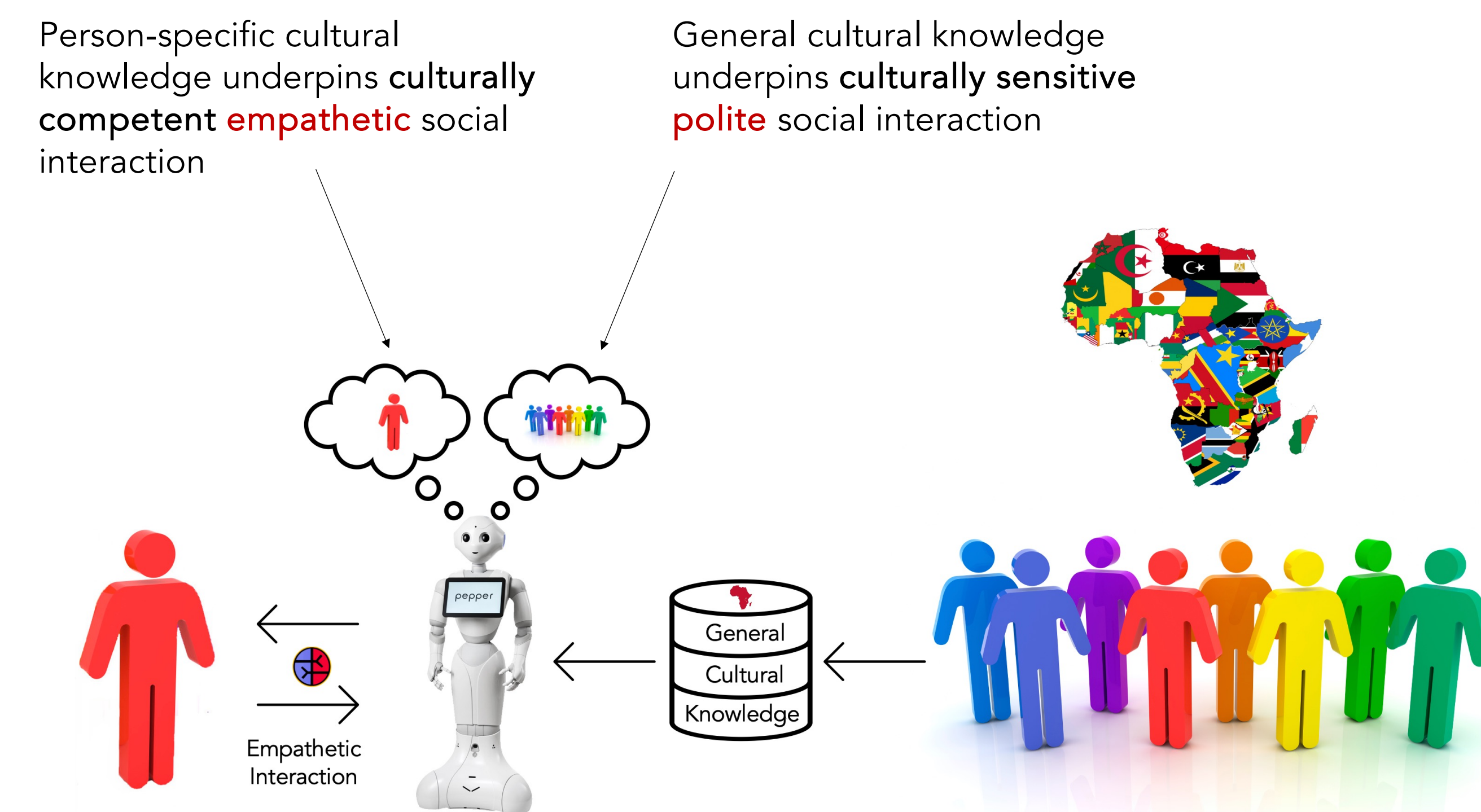


Culturally-Sensitive Social Robotics for Africa

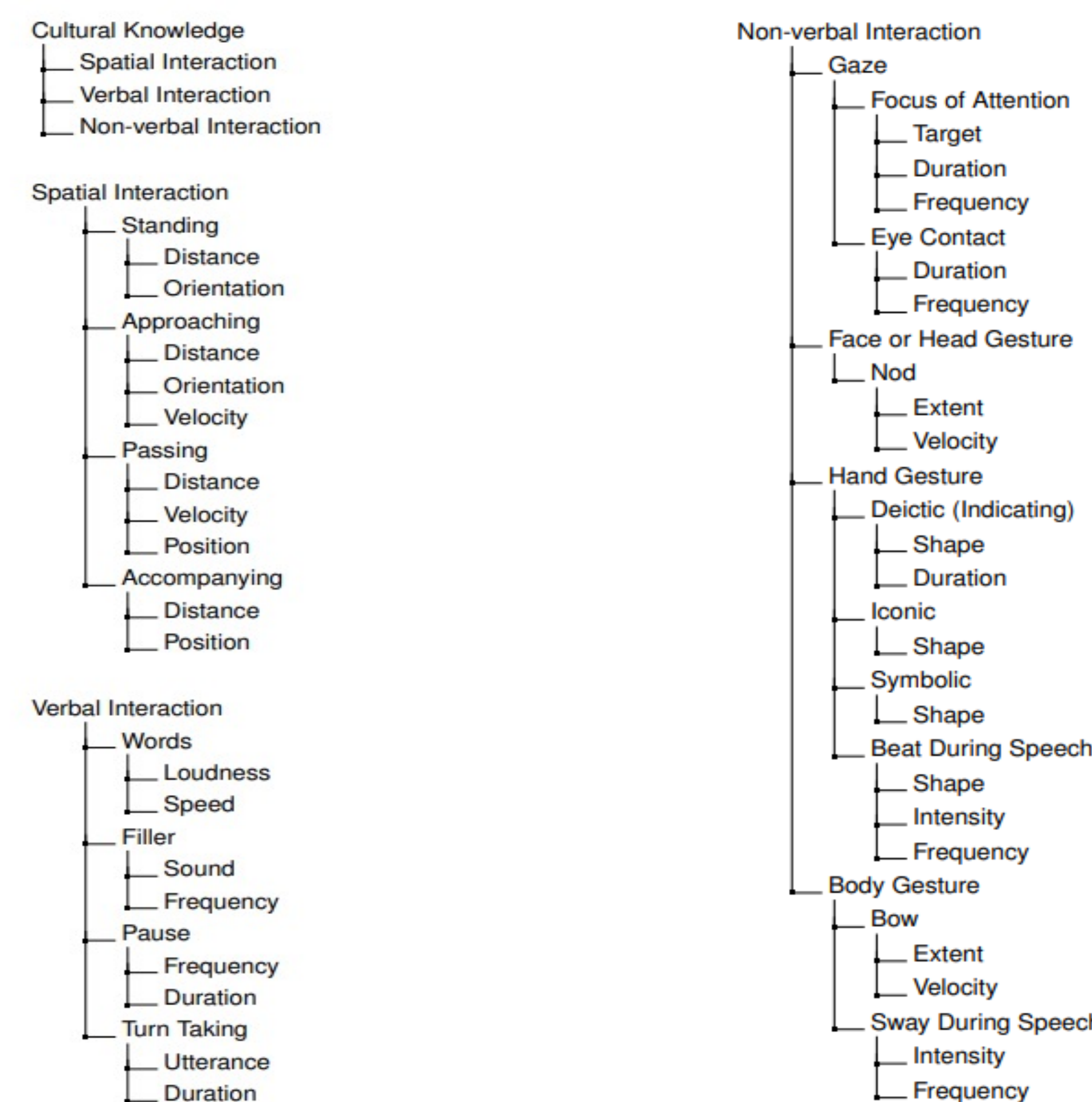


Research Goals

The CSSR4Africa project is working equip social robots with the ability to interact sensitively and politely with people in Africa using spatial, non-verbal, and verbal modes of communication.



Cultural Knowledge Ontology



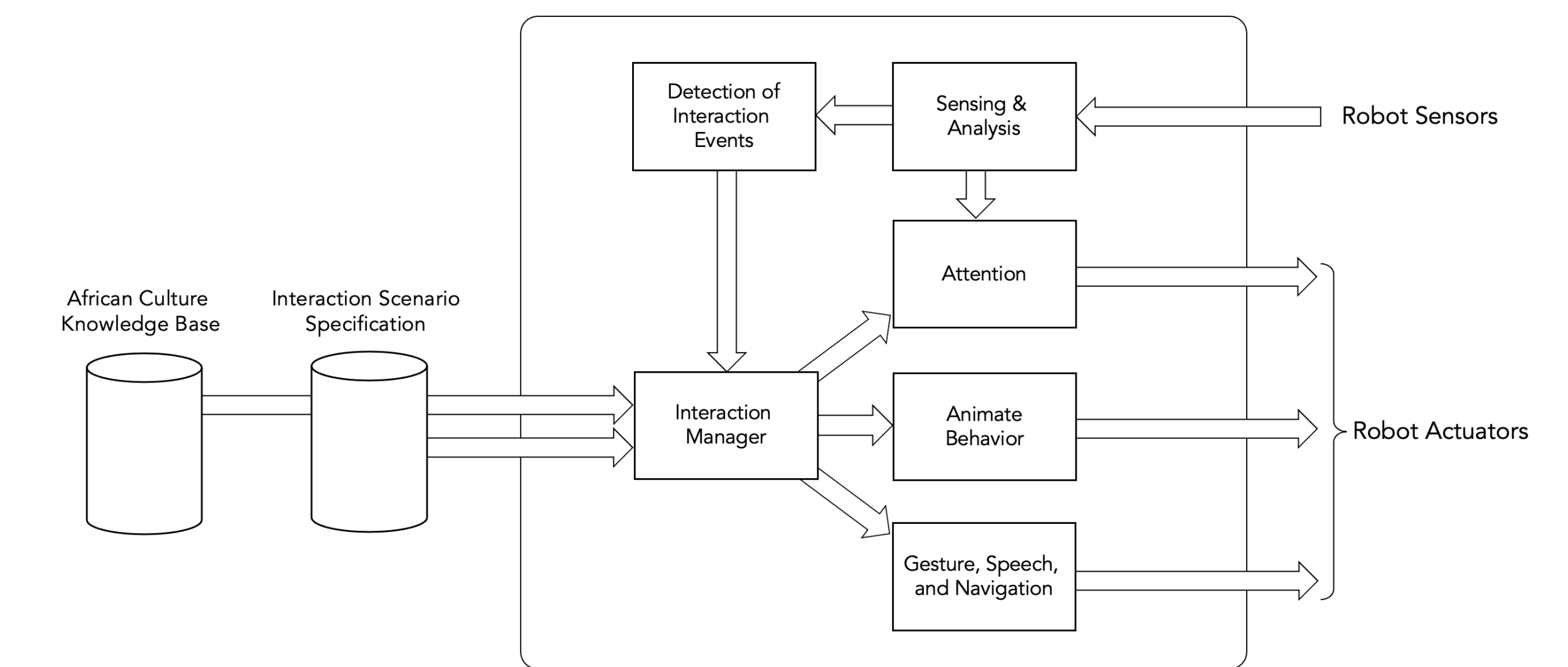
The Pepper Social Robot



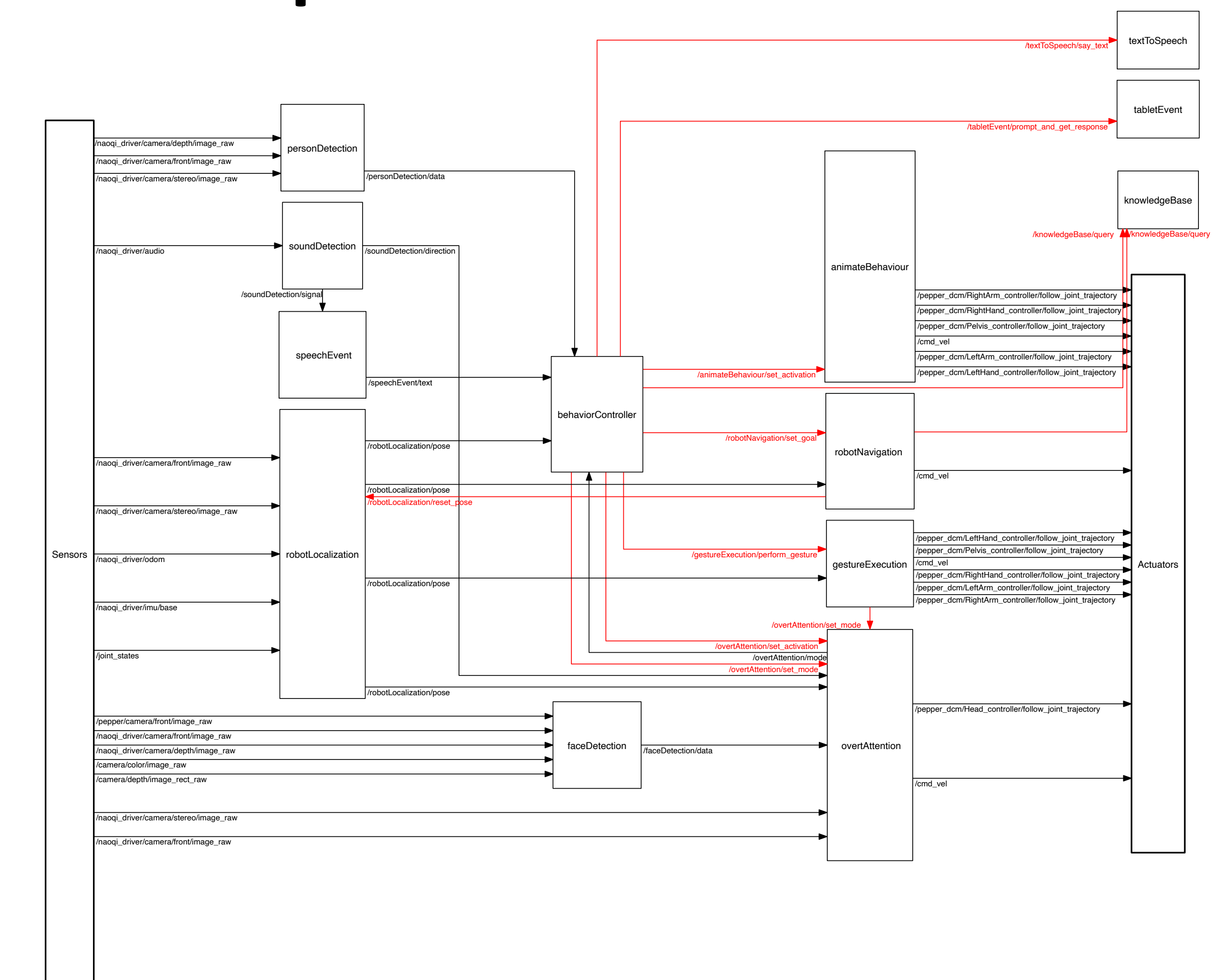
Example Cultural Knowledge

| No. | Socio-cultural Norm or Trait |
|-----|--|
| 1 | All interactions should begin with a courteous greeting. |
| 5 | To show respect, one should bow slightly and lower gaze when greeting someone older. |
| 8 | One should use an open palm of the hand to point to people and objects. |
| 10 | One should not use the left hand to point to anything. |
| 19 | One should not make persistent eye contact with an older person. |
| 21 | To show respect, one should shake hands with the right hand and use the left arm to support the right forearm when doing so. |
| 23 | One should not walk between two or more people who are conversing; it is considered rude to do so. |
| 25 | Behaviours should focus on fostering social connections and relationships; they should not be purely functional. |

System Architecture



ROS Implementation



Publications

- A. Akinade, D. Barros, and D. Vernon, "Biological Motion Aids Gestural Communication by Humanoid Social Robots", International Journal of Humanoid Robotics, Accepted for publication, January 04, 2025
- A. Akinade, Y. Haile, N. Mutangana C. Tucker, and D. Vernon, "Culturally Competent Social Robots Target Inclusion in Africa", Science Robotics, 2023.
- D. Vernon, "An African Perspective on Culturally Competent Social Robotics: Why DEI Matters in HRI", IEEE Robotics and Automation Magazine, Vol. 31, No. 4, pp. 170-200.
- P. Zantou and D. Vernon, "Culturally-Sensitive Human-Robot Interaction: A Case Study with the Pepper Humanoid Robot", Proc. IEEE Africon, Nairobi, Kenya, , 2023.
- P. Zantou and D. Vernon, "Inclusion Drives Sustainable Development: The Case of Social Robotics for Africa", Poster Presentation, ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies COMPASS, 2023.

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