Review of: "Design and Realization of a Low-Cost Smart Walking Aid for Visually Impaired and Blind People"

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Potential competing interests: No potential competing interests to declare.

- I consider that the WHO reference in the first paragraph on page 2 (p2) should be updated, because it is more than 10 years old and the WHO should have up-to-date information.
- The text is sometimes written in language that is not inclusive, which is not recommended or rather should be avoided. To this end, I suggest that reference be made to the document entitled "Disability-Inclusive Language Guidelines" of the UN, which gives guidelines on how to communicate in an inclusive way.
- This large opening paragraph of the introduction can be divided into a few other paragraphs.
- In the introduction it is stated that the detection range is 20 cm to 2 m, however, in p3, last paragraph, the initial value is given as 2 cm. So, this needs to be revised.
- In the same paragraph above, the sentence beginning "For obstacles located above, ..." should be modified, as it is better to indicate a range of obstacle detection heights, rather than qualitative language. Furthermore, so far only a cane has been described in the manuscript, and suddenly a pair of glasses with a sensor appears. This is shown in Fig. 2 and in other paragraphs. This should be indicated beforehand, that the system consists of an instrumented cane plus glasses.
- How do you suggest charging the batteries with solar power - do you propose to have a charger on the stick itself or elsewhere? Would this charger be an additional cost? Perhaps it would be better to charge it with electrical power from electrical sockets in their homes?
- I have some concerns with the implementation of the smart cane proposed in figure 3, in terms of its use. In the handle area of the cane, the battery unit and the vibration motor have been placed, would this modify this handle which would alter the standard of the cane set for its use? There is about the folding part of the stick (or telescopic according to the drawing) where there are some devices like the buzzers and ultrasonic sensor, with this the original stick could not be folded, making its users not to give it the proper function they used to do before. And the water sensor at the tip of the cane would no longer provide the important functionality that visually impaired people use. Have you evaluated all this, since adding functions would also take away other original and certified functions? This is demonstrated by the picture in figure 6. Furthermore, the electronic boxes are relatively large for the stick, thus modifying the standard approved weight of the stick, which would not be correct.
- In the flowchart I notice routines that make the system run only once when it performs any detection. For example, when the ultrasonic sensor detects something at the bottom of the stick and triggers the respective buzzer, the flowchart does not return to the sensor trigger processing, so the program has reached its end. This needs to be

revised.