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.

Dear Authors,

Your contribution is about the design of a low-cost walking stick for blind people. In my opinion this could be a good starting point but at the moment this work has some issues. In the following i will list my main comments.

- State of art has releatively old references. The newest one is 6 years old. By doing a very quick research I found more recent contributions. You should do a critical analysis of more recent studies and design proposals.
- I also suggest you to summarize the limitations of current proposals, so it it easier to later highlight your own contribution. At the moment, by your brief description, it seems that your proposal is just a slight variation of what have been already done.
- Why do you implement sound alert if you previously mention that this could be an issue?
- Why don't you use vibrations at different frequency and/or with different “vibration pattern” to communicate with the user?
- You mention a 20 - 30 W power requirement. Can you define a reasonable operation time considering that the user is carrying a battery?
- Some comments based on fig.3. :
    - Ultrasonic sensors are pointing in a direction perpendicular to the stick axis. This means that while in use, they are pointing mostly up to the sky. Why do you implement this choice instead of a solution that can point the sensors in the horizontal direction?
    - How can you guarantee that the user is properly orienting the sensors?
    - You place a water sensor at the tip. But often walking aid sticks have custom tips (wheels, rollers, larger flat ends, …) based on user preferences. Why one should favour your very specific solution compared to a broader selection of custom tips that are still able "to detect" water by providing a different friction feeling?
    - How do you choose the ultrasonic sensors position?
    - You are mounting the battery on the stick, close to the user hand. Based on the power and duration requirements it could be quite heavy. Why do you chose this particular solution?
- Why the shortest detection range is limited to 20 cm when the device could detect as close as 2 cm?
- You should all the symbols you use. e.g. while talking about $D = (v_s T)/2$ you only talked about v_s.

- Your prototype seems quite bulky. How much does it weight? What are its main dimensions?
- The experimental method should be described in details. For example, while testing the ultrasonic sensors, was the stick moving left to right? Do both sensors have to detect an obstacle or only one is fine? How these tests compare to a more realistic scenario?
- Fig.7 could be larger
- Devices like this should require experimental tests done by visually impaired people.

Minor comments

- Typo in Fig 1. “Eastern Mediterranean”
- "GSM cum GPS module". Maybe you meant “GSM with GPS module”