To reviewer 3 of Sensors Journal

28 Jun 2019

Dear reviewer 3,

Reply to reviewer 3 on Sensors Journal
Ref No. sensors-530236, “An Advanced First Aid System Based on an Unmanned Aerial Vehicle and Wireless Body Area Sensor Network for Elderly Persons in Outdoor Environments”

First, the authors would like to thank the reviewer 3 and editor for their valuable comments and contributions to our manuscript. We find that the comments greatly improve the accuracy and clarity of the paper. We have revised the manuscript in accordance to the reviewer comments. Please find the author’s response to each of the editor and reviewer specific comments below:

Reviewer 3

Comments and Suggestions for Authors

The paper presents a complex solution for first aid to delivery for elderly persons after a fall. The paper represents an excellent work. The topic is highly relevant. It is carefully prepared and easy to follow. It contains a useful literature review on fall detection systems and UAV systems. The architecture of the proposed system is described in details. A new fall detection method is presented. The proposed system is thoroughly evaluated from several aspects and it outperformed the similar existing systems.

Comment A) I have one concern regarding the practical significance of the proposed system. What happens after the first aid package is delivered? A seriously injured person is unable to use it.

Response A) Aim of delivering the first aid kit has been explained to the current version. It can be found in Section 3.2.2, page 10, and lines 427-429.

Some remarks:

Comment B) Fall-detection algorithm: Is NHR_t a scalar or an interval? If it is an interval then the condition should be HR_m \in NHR_t instead of equality check.

Response B) NHR_t was interval and the condition of the algorithm has been changed to the HR_m \in NHR_t in the current version. It can be found in the fall detection algorithm (Section 4.1), page 13, Figure 5a.

Comment C) Eq (3): the lower index of timesaving’s is i (not n)

Response C) Thank you for the reviewer. It has been corrected. It can be found in Eq (3), Section 5.2, page 16, line 631.
Comment D) Eq (4): please add index i to the variables within the sum

Response D) Thank you for the reviewer. It has been added to Eq (4). It can be found in Eq (4), Section 6.1.1, page 17, line 659.

Comment E) What kind of algorithm is applied in autopilot program?

Response E) Algorithm of the autopilot has been adding to the current version. It can be found in Section 3.2.3, page 11, lines 458-468.

Comment F) References: Autopilot is duplicated in the reference list (15 and 54)

Response F) Reference [54] has been changed to a new reference in the current version. It can be found in the reference, page 27, reference 54.