Reviewer's report

Title: A mobile health monitoring-and-treatment system based on integration of the SSN sensor ontology and the HL7 FHIR standard

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Reviewer: ZHEYU WANG

Reviewer's report:

The manuscript by Shaker El-Sappagh et al. entitled 'A mobile health monitoring-and-treatment system based on integration of the SSN sensor ontology and the HL7 FHIR standard' is an interesting study on the mobile health technology for patient self-management of type 1 diabetes mellitus. The authors proposed a mobile health CDSS framework based on the FASTO ontology. FASTO mainly integrates the HL7 FHIR standards, semantic sensor network ontology, basic formal ontology and clinical practice guidelines to generate complete treatment plans for patients according to real-time patient sensor data with collected historical EHR data. The proposed framework handles the interoperability challenges based on a set of standards and can be generalized to other chronic diseases such as hypertension and chronic obstructive pulmonary disease. In general, this is a well-written paper that provides plenty of details. However, there are some points that authors should essentially respond the following comments:

1. In Section 3, the authors claimed that the framework has four main modules: the patient module, the services module, the cloud-based CDSS module, and the healthcare provider module. Then these modules were detailed in Section 4-6. However, the last module (healthcare provider module) was called EHR backend systems in Section 6. It is easy to figure out that they mean the same thing after read the section, but maybe keeping the module name consistent can improve the readability.

2. (Discretionary) Section 5.1 provided lots of details about the concrete classes and rules. It is difficult for the reader to absorb at a first reading. Maybe the details can be described in a more elegant and concise way.

3. Table 7 should be placed in Section 7.3, not in 7.4.2.

4. Figure 10: Resolution of the ontology part (FASTO + Pellet) should be improved.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

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