Drink. Water Eng. Sci. Discuss.,
https://doi.org/10.5194/dwes-2018-35-AC2, 2019

Open Access Drinking Water Engineering and Science Discussions

Interactive comment on "Raspberry Pi based Smart Sensing Platform for Drinking Water Quality Monitoring System: A Python Framework Approach" *by* Punit Khatri et al.

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Received and published: 30 March 2019

Dear Reviewer 2, Thank you for your valuable comments on this work which helps us to improve our revised manuscript quality.

Reply to Comments Referee Comment: General comments: - The topic of the paper is quite relevant. - Language should be looked at, specifically the use of articles. - The number of samples used for validation is very limited. Also, the range of parameter values within the set of samples is both small and limited to values in the desired range. The purpose of the system is, it seems to me, to detect water quality deviations, so at least you should show that the system is capable of doing so. Author Response:

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Discussion paper

The samples are collected in real-time from the distribution network for water supply in the campus. So, there is not much variation in the sample values. But, for the validation of system we have simulate the sensor readings and used in our fuzzy model and the same has been updated in the results and discussion section. Also, the PRE plot has been updated. Page 7. Line 7-10.

Referee Comment: comment references: page. line 1.16 very essential -> essential Author Response: Corrected. Page 1. Line 22

Referee Comment: 1.19 there must be more recent number than those from 1996 Author Response: Corrected and updated in manuscript. Page 1. Line 24

Referee Comment: 1.22 suggestion to rephrase second half of this sentence: ...and the situation may become worse in the future. Author Response: corrected and updated. Page 1. Line 28

Referee Comment: 1.24 is IWT a measuring tool or a visualization platform? Author Response: IWT is a visualization platform which gets data from Govt agencies and update the same in the tool at regular interval. Page 1. Line 29-30

Referee Comment: 2.29 The point of this sentence should be the ability to include vagueness or ambiguity rather than its similarity to the way humans may think. Author Response: updated in manuscript. Page 3. Line 11.

Referee Comment: 2.30 Less mathematically intensive than what? Author Response: the fuzzy logic comes under the category of intelligence techniques like neural network and genetic algorithms. In such case, fuzzy is less mathematically intensive as the other techniques require rigorous mathematical computation. The same has been updated in the manuscript. Page 3. Line 13.

Referee Comment: 3.3 In my opinion, there is no added value presenting this information in a figure in the way it has been done. Author Response: the figure has been removed and information has been updated in the section 2.2.

Referee Comment: Just include it in the text. 3.4 scikit-fuzzy development team Author Response: corrected. Page 3. Line 19.

Referee Comment: 3.7 produces Author Response: corrected. Page 3. Line 22.

Referee Comment: 3.8 exerts? Author Response: corrected. Page 3. Line 23.

Referee Comment: 3.10 please rephrase Author Response: corrected. Page 3 line 25-26.

Referee Comment: 3.13 functions are most commonly used; their linear nature Author Response: corrected. Page 3. Line 28-29.

Referee Comment: 3.14 easy implementation ability -> ease of implementation Author Response: corrected. Page 3. Line 29.

Referee Comment: 3.23 effect -> affect? Author Response: corrected. Page 4. Line 8.

Referee Comment: 3.24 What is meant by fired? Ignored, removed? Author Response: the rule which does not affect the output was ignored. Page 4. Line 8.

Referee Comment: 4.6 systam -> system Author Response: corrected. Page 4. Line 17.

Referee Comment: 4.8 than -> then Author Response: corrected. Page 4. Line 19.

Referee Comment: 4.8-9: unclear sentence, please rephrase Author Response: corrected. Page 4. Line 20.

Referee Comment: 4.24 integrated with -> coupled to Author Response: corrected. Page 5. Line 12.

Referee Comment: 5.24: "illation" : I had to look that word up. Author Response: corrected. Page 6. Line 7.

Referee Comment: 6.9: fuzzy -> the fuzzy inference system? Is that what you mean? Author Response: yes, it is fuzzy inference system. Corrected. Page 6. Line 8.

Referee Comment: 6.15: No work on that done yet, so I would not use the word "compatible". You might mention that making it into an IoT application will be relatively straightforward because the RPi has a wifi chip. Author Response: corrected. Page 7. Line 19.

Referee Comment: 6.16: looks? Author Response: corrected. Page 7. Line 22.

Referee Comment: 6.16: I can see the practical importance, but the academic is not clear to me. Author Response: for academic purpose, the developed prototype can be use for the demonstration in university/college or exhibition fair. In this aspect, it can have the academic purpose as well.

Referee Comment: Table 1 - C3: fix enumeration - Why is the requirement for untreated water 'A' stricter than for treated water 'C' in terms of total coliforms? Author Response: These are the standards defined by WHO as well as CPCB, New Delhi. In case of total coliforms, CPCB has given maximum permissible limit of drinking water subject to pollution. That is why the total coliform limit is higher in type 'C' than type 'A' in drinking water. (Page 9 in reference document) (Visionary et al., 2015).

Referee Comment: Figure 6: Is there 2-way communication between the hardware platform and the sensors? The figure suggests there is. Author Response: Yes, there is 2-way communication as the sensors are interfaced through I2C communication protocol. Every sensor has its unique address and gives response to the Raspberry Pi. Referee Comment: Figure 9: Please indicate units and x-axis parameter. Author Response: Corrected.

References Visionary, E., Goals, S., North, A. D., Services, S. M., Procurement, P., Friendly, E., Ecblab, U. and Star, E.: Environmental Standards, , 1–2 [online] Available from: https://scclmines.com/env/ENVIRONMENTAL STANDARDS.pdf (Accessed 29 March 2019), 2015.

Please also note the supplement to this comment:

https://www.drink-water-eng-sci-discuss.net/dwes-2018-35/dwes-2018-35-AC2-supplement.pdf

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