Response to Reviewer 1 Comments

We sincerely appreciate your kind and detailed review and comments on several important points in this paper. We provide our replies below and request your valued opinion.

Point 1: There are some expressions that seem not to be accurate, such as “attend their shop floor” in Line 75, “Materials The shop floor” in Line 105, “…with sensing ability of…” in Line 239, and the inconsistent tense of the sentence in Line 385. It is recommended to modify the writing and improve the quality.

Response 1: Based on the reviewer’s comments, the manuscript is modified as below (in red):
- Line 75: ‘attend their shop floor’ → Line 96: ‘visit their shop floor’
- Line 105: ‘Material The shop floor’ → Line 70: remove ‘Material’
- Line 239: ‘with sensing ability of their eyes and ears.’ → Lines 238-239: ‘with the ability of vision and hearing.’
- Line 385: ‘and was equipped’ → Line 386: ‘and is equipped’

Point 2: As for the contents of Section 2 and the part of Section 3 before section 3.1, I think that these analysis and discussion about status monitoring and machine vision belong to the Introduction part. They are nothing new developed but some existing references/technologies summation. It is suggested these contents should be rewritten in Section 1, so that the Introduction could be more comprehensive. In addition, is the contribution of this proposed approach a novel integration structure of existing intelligent methods? I am confused whether the detailed methods in Section 3 introduced are developed by the authors or by other scholars. Section 4 also makes me feel the same.

Response 2: Based on the reviewer’s comment, the manuscript is modified by merging the part of Section 2 and the introductory part of Section 3 into Section 1 as shown in Lines 69 to 176 (in red).

Also, compared with the research background summarized in Section 1, the contents of manuscript from Section 2 are a novel approach using existing technologies to present a cost-effective way of monitoring the machine tools without the network capability, especially for the small and medium-sized enterprises.

Point 3: In the sentence starting at Line 250, what does “a higher-level condition of machine or operation” mean specifically? The statement is not clear enough to understand this advantage of operational status.

Response 3: The higher-level condition refers to the state information of the machine tool as the same as the monitored data by an operator, unlike the operational data, which is the numerical value found on the HMI screen described in Table 3. This state information cannot be determined solely by monitoring operational data but can be determined through reasoning logic established based on knowledge of the machine operation in advance as shown in Table
4. This information is essential for operating and managing machine tools, which could be useful when automated operations are required such as the conceptual scenario shown in Figure 7.

By reflecting the reviewer’s comment, the manuscript is modified in Lines 250 to 253 below (in red):

“In monitoring machine tools, the operational status means a higher-level condition of machine or operation which can be identified by collecting and analyzing the operational data [60]. Also, this information is essential for operating and managing machine tools, which could be useful when automated operations are required.”

**Point 4:** The References list should be modified, "Mission reliability evaluation based on operational quality data for multistate manufacturing systems", "Risk-oriented assembly quality analysing approach considering product reliability degradation" and other related published papers in Sensors like "Risk-Oriented Product Assembly System Health Modeling and Predictive Maintenance Strategy", "A Mission Reliability-Driven Manufacturing System Health State Evaluation Method Based on Fusion of Operational Data" and etc. should be cited. And the conference papers in the references list should be deleted substantially.

**Response 4:** Based on the reviewer’s comment, the following papers from Sensors are added in the manuscript:


Also, the following conference papers are replaced by high-related journal papers in the manuscript:


