Algorithm1: C-IFS-FWZIC Method

Step 1: Define the Sustainable Sensing Parameters Attributes:
Identify $SSPA[j]$

Step 2: Structured Expert Judgment:
Define $EX[i]$

Define Ques, NS
$n_E \leftarrow$ length (EX)
For i from 1 to n_E
If $EX[i]$ is true then
$EX[i] \leftarrow$ Ques(i)
EndIf
EndFor

Step 3: Building the Expert Decision Matrix (EDM):
Initialize $EDM[i,j] \leftarrow E \uplus SSPA$
m $\leftarrow$ length ($SSPA$)
For i from 1 to n_E
For j from 1 to m
$EDM[i,j] \leftarrow NS(EX[i] \mid SSPA[j])$
Endfor
Endfor

Step 4: Application of C-IFS Function:
For i from 1 to n_E
For j from 1 to m
$$[\alpha[i,j], \beta[i,j]] = C - IFS\ (EDM[i,j])$$
Endfor
Endfor

Step 5: Calculate the Arithmetic Average:
For j from 1 to m
$$[\bar{\alpha}[j], \bar{\beta}[j]] = \left(\frac{\sum_{i=1}^{n_E} \alpha[i,j]}{n_E}, \frac{\sum_{i=1}^{n_E} \beta[i,j]}{n_E}\right)$$
Endfor

Step 6: Calculate the Maximum Radius Lengths for C-IFS:
For j from 1 to m
$$r[j] = max_{1 \le i \le n_E} \sqrt{(\bar{\alpha}[j] - \alpha[i,j])^2 + (\bar{\beta}[j] - \beta[i,j])^2}$$
Endfor

Step 7: Apply IFS Aggregation Operator:
For j from 1 to m
$$[\mu[j], \nu[j]] = \left(1 - \prod_{j=1}^{n_E}(1 - \alpha[i,j])^{\frac{1}{n_E}}, \prod_{j=1}^{n_E}(\beta[i,j])^{\frac{1}{n_E}}\right)$$
Endfor

Step 8: Calculate the Optimistic Attribute Weight Matrix and the Pessimistic Attribute Weight Matrix from C-IFNs
For j from 1 to m
$$Q^O[j,1] = \mu[j] + r[j] \text{ and } Q^O[j,2] = \nu[j] - r[j]$$
$$Q^P[j,1] = \mu[j] - r[j] \text{ and } Q^P[j,2] = \nu[j] + r[j]$$
Endfor

Step 9: Find the Score Values
For j from 1 to m
$$S^O[j] = Q^O[j,1] - Q^O[j,2]$$
$$S^P[j] = Q^P[j,1] - Q^P[j,2]$$
Endfor
For j from 1 to m

$$w^O[j] = \frac{S^O[j]}{\sum_{j=1}^{m} S^O[j]}$$
$$w^P[j] = \frac{S^P[j]}{\sum_{j=1}^{m} S^P[j]}$$

Endfor

Step 10: Find the Final Weight

For j from 1 to m

$$w[j] = \frac{0.01 + w^O[j] \times w^P[j]}{\sum_{j=1}^{m}(0.01 + w^O[j] \times w^P[j])}$$

Endfor

Algorithm 2: ARAS

Input: Alternatives, Attributes, and Attributes Weights

Output: Select the Best Alternative

Step1: Formulate Decision Matrix
Identify SSPA[j] //Sustainable Sensing Parameters Attributes
Identify IoTRTMD[i] //Internet of Things real-time monitoring devices
$X[i,j] \leftarrow$ (IoTRTMD[i] | SSPA[j]) //Binary values Decision Matrix
n ← length (IoTRTMD)
m ← length (SSPA)
$X[0,j] = 1$ // Attributes are beneficial

Step 2: Normalize the Decision Matrix
For i from 0 to n
For j from 1 to m

$$\bar{X}[i,j] = \frac{X[i,j]}{\sum_{i=0}^{n} X[i,j]}$$

EndFor
EndFor

Step 3: Import the weights $w[j]$ from the C-IFS-FWZIC Method (Algorithm 1)

Step 4: Calculate the Normalized Weighted Decision Matrix
For i from 0 to n
For j from 1 to m

$$\hat{X}[i,j] = w[j]\,\bar{X}[i,j]$$

EndFor
EndFor

Step 5: Calculate the Values of the Optimality Function
For i from 0 to n

$$S[i] = \sum_{j=1}^{m} \hat{X}[i,j]$$

EndFor

Step 6: Determine the Utility Degree of Alternative
For i from 0 to n

$$K[i] = \frac{S[i]}{S[0]}$$

EndFor
Rank the IoTRTMD based on the $K[i]$ values.

TABLE A.I
DECISION MATRIX RESULTS

Attributes / Alternatives	Temperature	Relative Humidity	Gas Composition	Location	Light Intensity	Pressure	Weight	Microbial Concentration	Vibration	Air Velocity
IoTRTMD 1	1	1	1	0	0	0	0	0	1	0
IoTRTMD 2	1	1	1	0	1	0	0	0	0	0
IoTRTMD 3	1	1	1	0	0	0	0	0	0	0
IoTRTMD 4	1	1	1	0	0	1	0	0	0	0
IoTRTMD 5	1	1	0	0	0	0	1	0	0	0
IoTRTMD 6	0	0	0	0	0	0	0	1	0	0
IoTRTMD 7	1	0	0	1	0	0	0	0	0	0
IoTRTMD 8	0	0	1	0	0	0	0	0	0	0
IoTRTMD 9	1	1	0	0	0	0	1	0	0	0
IoTRTMD 10	1	1	0	0	0	0	0	0	0	0
IoTRTMD 11	0	0	1	0	0	0	0	0	0	0
IoTRTMD 12	1	1	1	0	0	0	0	0	0	0
IoTRTMD 13	1	1	1	0	0	0	0	0	0	0
IoTRTMD 14	1	0	0	0	0	0	0	0	0	0
IoTRTMD 15	1	1	0	0	0	0	0	0	0	0
IoTRTMD 16	1	1	1	0	0	0	0	0	0	0
IoTRTMD 17	1	0	0	0	0	0	0	0	0	0
IoTRTMD 18	1	0	0	0	0	0	0	0	0	0
IoTRTMD 19	1	1	0	0	0	0	0	0	0	0
IoTRTMD 20	1	1	0	0	0	0	0	0	0	0
IoTRTMD 21	1	1	0	0	0	0	0	0	0	0
IoTRTMD 22	1	0	0	0	0	0	0	0	0	0
IoTRTMD 23	1	1	1	0	0	0	0	0	0	0
IoTRTMD 24	1	0	0	0	0	0	0	0	0	0
IoTRTMD 25	1	1	0	0	0	0	0	0	0	0
IoTRTMD 26	1	1	1	0	0	1	0	0	0	0
IoTRTMD 27	1	1	0	0	1	0	0	0	0	0
IoTRTMD 28	1	1	0	0	0	0	0	0	0	0
IoTRTMD 29	0	0	0	1	0	0	1	0	0	0
IoTRTMD 30	1	1	1	0	0	0	0	0	0	0
IoTRTMD 31	1	1	1	0	0	0	0	0	0	0
IoTRTMD 32	1	1	0	0	1	0	0	0	0	0
IoTRTMD 33	1	0	0	0	0	0	0	0	0	0
IoTRTMD 34	1	0	0	0	0	0	0	0	0	0
IoTRTMD 35	1	1	0	0	0	0	0	0	0	0
IoTRTMD 36	1	1	1	0	0	0	0	0	0	0
IoTRTMD 37	1	1	1	0	0	0	0	0	0	0
IoTRTMD 38	1	1	0	1	1	0	0	0	0	0
IoTRTMD 39	1	1	0	1	0	0	0	0	0	0
IoTRTMD 40	1	1	1	0	1	0	0	0	0	0
IoTRTMD 41	0	0	0	0	0	0	0	1	0	0
IoTRTMD 42	1	0	0	0	0	0	0	0	0	0
IoTRTMD 43	1	0	0	0	0	0	0	0	0	0
IoTRTMD 44	1	1	0	0	1	0	0	0	0	0
IoTRTMD 45	1	1	0	0	1	0	0	0	0	0
IoTRTMD 46	1	0	0	0	0	0	0	0	0	0
IoTRTMD 47	1	1	1	0	0	0	0	0	0	0
IoTRTMD 48	1	1	1	0	0	0	0	0	0	0
IoTRTMD 49	1	1	0	0	0	1	0	0	0	1
IoTRTMD 50	1	0	0	0	0	0	0	0	0	0
IoTRTMD 51	1	0	0	0	0	1	0	0	0	1
IoTRTMD 52	0	0	0	0	0	0	1	0	0	0
IoTRTMD 53	1	1	0	1	0	0	0	0	1	0
IoTRTMD 54	1	1	0	0	0	0	0	0	0	0