Review Form 1.7

Journal Name:	**Current Journal of Applied Science and Technology**
Manuscript Number:	**Ms_CJAST_113144**
Title of the Manuscript:	**Using Arduino to monitor temperature and relative humidity of the air used and that of the synthesis gas in a biomass gasifier**
Type of the Article	**Original Research Article**

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript)	The manuscript explores the critical process of biomass gasification, focusing on monitoring temperature and relative humidity using Arduino technology. This research holds significance for the scientific community due to its practical implications in sustainable energy production, particularly in regions like Burkina Faso where decentralized energy sources are crucial. By addressing challenges in gasification technology and proposing solutions for humidity control, the study contributes valuable insights to improve the efficiency and viability of biomass gasification systems. Additionally, the integration of Arduino-based monitoring systems offers scalable and cost-effective solutions for optimizing gasification processes, making the manuscript relevant and important for researchers and practitioners in renewable energy and environmental sustainability fields.	
2. Is the title of the article suitable? (If not please suggest an alternative title)	The tittle is good but to enhance clarity and specificity, a slightly revised title could be: "Monitoring Temperature and Humidity in Biomass Gasification Using Arduino Technology."	
3. Is the abstract of the article comprehensive?	The abstract of the article provides a general overview of the research topic, methodology, and findings. However, it could be enhanced by including more specific details about the objectives, methods, results, and conclusions of the study. Additionally, clarifying the significance and implications of the research findings would improve the comprehensiveness of the abstract	
4. Are subsections and structure of the manuscript appropriate?	There may be areas where the subsections could be further refined or expanded to provide clearer delineation between different aspects of the study. Ensuring that each subsection addresses a specific aspect of the research and flows smoothly into the next would enhance the overall structure and readability of the manuscript. Additionally, the clarity of section titles could be improved to accurately reflect the content they encompass. Some suggestions to refine the subsections and improve the clarity of section titles: 1. Introduction: a- Ensure that the introduction provides a clear overview of the research objectives, the significance of the study, and its relevance to the field of biomass gasification. b- Consider breaking down the introduction into smaller subsections to address specific aspects, such as the background of biomass gasification, previous research gaps, and the purpose of the current study. 2. Experimental Setup: a- Divide the experimental setup section into subsections that detail each component of the gasification system, including the reactor, cyclone, water condenser, and filter. This will help readers understand the experimental apparatus more effectively. b- Provide clear headings for each subsection to indicate the specific components or processes being discussed. 3. Methods: a - Expand the methods section to provide detailed explanations of the procedures followed for humidity measurement, temperature monitoring, and data acquisition using Arduino technology. b - Consider dividing the methods section into subsections for humidity measurement, temperature monitoring, sensor calibration, and data analysis methods. 4. Results and Discussion: a - Elaborate the discussion of results within the same section to provide context and interpretation of the findings. 5. Conclusion:	

5. Do you think the manuscript is scientifically correct? **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	a - Summarize the main findings of the study concisely and emphasize their implications for biomass gasification research and practical applications. b - Consider including recommendations for future research directions based on the current findings. Regarding the clarity of section titles, ensure that each title accurately reflects the content covered in the respective section and provides readers with a clear understanding of what to expect. Avoid overly general titles and aim for specificity to enhance the readability and navigability of the manuscript. Yes There are sufficient references in Introduction and material methods section. But there are no references in the discussion section, Work on result and discussion section and add the references.	

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Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	There some revision required for improving quality of the manuscript. The points which need improvement are as follows: 1. **Sentence Structure and Grammar:** Some sentences are overly complex or contain grammatical errors, which can hinder readability. For instance, there are instances of run-on sentences and awkward phrasing throughout the text. For example The sentence "Therefore, we ran to the conclusion that relative humidity of air should be mastered in order to enable us conduct gasification experiments at any time" is convoluted and lacks clarity. It could be revised for better readability and understanding. For instance, "Therefore, we concluded that mastering the relative humidity of the air is essential for conducting gasification experiments reliably." 2. **Conciseness:** Certain sections could be condensed to streamline the presentation and maintain the reader's focus on key points. The text appears to contain redundant explanations and overly detailed descriptions that could be summarized more efficiently without losing essential information. For instance, complex technical details could be simplified without sacrificing the scientific rigor of the research 3. **Consistency in Terminology**: Ensuring consistency in the use of terminology throughout the article is crucial for clarity and comprehension. This includes maintaining uniform terminology related to concepts such as "relative humidity," "gasification," and "Arduino." Inconsistencies in terminology can confuse readers and detract from the coherence of the research.	

Optional/General comments	1. "We have chosen gasification with ambient air in our project for costs considerations." - Change "costs considerations" to "cost considerations."
	2. "Relative humidity (RH) of the air we used with a downdraft co-current gasifier is monitored in this paper." - The sentence structure is awkward. It could be revised to: "This paper monitors the relative humidity (RH) of the air used with a downdraft co-current gasifier."
	3. "RH sensor used in this paper presents a capacitor which depends on the amount of water contained in the gaseous mixture." - Change "presents" to "contains."
	4. "That RH, behaving as a variable capacitor is inserted in serial with the RC circuit of an astable multivibrator." - The sentence structure is confusing. It could be rewritten for clarity.
	5. "Frequency of the oscillator is dependent of the resistance and the capacity which depends on the RH." - Change "dependent of" to "dependent on."
	6. "From the RH sensor datasheet, a mathematical model has been developed and the equation giving RH found." - It should be "the equation giving RH is found" or "the equation for RH is found."
	7. "Using Arduino Uno3 as a computer, we have calculated corrected RH respective to temperature and displayed both ambient and real RH on 20 columns with 4 lines LCD display." - Change "respective" to "respectively," and revise the sentence for clarity.
	8. "Arduino has also enabled us to save measured data in an Excel sheet, allowing us to analyses measured temperature and RH and plot different curves from it." - Change "analyses" to "analyze."
	9. "The stoichiometric combustion of wood in air containing 21% of oxygen and 79% of nitrogen is the following equation:" - It should be "is as follows."
	10. "Consequently, we have mixture of CO, H2O, H2, CH4, CO2 and N2 from the gasification of biomass." - Change "we have mixture" to "we have a mixture."
	11. "PLX-DAQ execution" - Add "The" before "PLX-DAQ."
	12. "Serial.print(hour()); //Save hour Serial.print("h");" - Add a period after "hour()" for clarity.
	13. "Serial.print(Rhum,1);" - Change "Rhum" to "RH" for consistency with the abbreviation used earlier.
	
	The manuscript need proof reading for grammatical mistakes and clarity.	

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PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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