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Use of Congress Grass for Producing Bio-Gas and Bio-CNG

Anushka Kulkarni
MBA Student, Abhijeet Kadam Institute of Management and Social Sciences, Solapur, Bharti Vidyapeeth (Deemed University), Solapur, Maharashtra, India
Santosh Kulkarni
Head of Department, Bachelor of Computer Administration, Mangalvedhekar Institute of Management, Solapur, Maharashtra, India

Abstract
Congress Grass, which is a weed is highly invasive and is almost found all over the world. This weed entered in India from USA in early 1950s when Wheat was exported from USA. Hence, in order to reduce the side effects of this weed, we have come up with a proposal to develop a system, where Congress is used as a Bio-CNG and Bio-gas, where it is converted to Bio-CNG and Bio-Gas through a long process, which will further energize both the warehouses and the transportation vehicles. Bio-Gas is used to energize the warehouses and Bio-CNG is as a fuel for Transportation Vehicles. This will help us to reduce the emission of CO2 as well as other toxic gases in the environment. Hence, this is a sustainable proposal to which we will also create a healthy environment for the upcoming generations and this Bio-Gas and Bio-Fuel can also be used as an alternative to various other fuels. Therefore, a combination of Artificial Intelligence, Production process, Chemistry, Industrial Internet of Things, Cloud Computing.
Keywords: *Biogas, CNG, Production, Cloud Computing, Bio-Fuel, Energy*

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1. Introduction

This is a system which is a combination of Artificial Intelligence, Production process, Chemistry, Industrial Internet of Things, Cloud Computing, Logistics. This is a system which uses Congress Grass as a main input and output is Bio-Gas and Bio-CNG. These elements are sustainable and because of use of these two elements, the air pollution can be reduced to much extent. Hence, this system has a huge process for conversion of Congress Grass into Bio-Gas and Bio-CNG.

2. Rational of Study

This system is a huge system which can be placed in Industrial unit. It requires a huge space. But this system is easy to handle when proper training of Bio-Gas and Bio-CNG conversion from Congress Grass is properly given. This system is similar to any kind of Biofuel Production System around India. Hence, Safety Equipments must be given to the labors, so as to prevent any accidents in the Industry Unit.

3. Problem Statement

In order to reduce the pollution, carbon emission and other harmful chemicals, protect the ozone layer and to protect overall environment, using Congress Grass Based Bio-Gas and Bio-CNG to make a step towards the Sustainable Environment and Logistics. And connecting this whole system to Cloud, Artificial Intelligence and IIOT.

4. Background of Study

It is observed that plants are used to produce Bio-fuels, Bio-Gas, Bio-CNG. And the weed like Congress Grass is used to produce Bio-ethanol. Hence, when we connect this technology to Logistics, it becomes a more advanced technology, where sustainability gets is achieved in a proper way. That's why; connecting these two parts that is Congress Plant based Fuel production to Logistics will help us to solve the environmental problems. And hence AI, IIOT, Cloud will help us to achieve maximum target.

5. Objectives of Study

1. To reduce pollution because of Petrol, Diesels, Crude Oils, etc.
2. To make environment sustainable for the upcoming generations
3. To reduce emission of harmful toxins like Co2, CO, Sulphurs

4. To protect Ozone Layer Depletion
5. To reduce cost on Energy Generation

6. Discussion

Due to the use of petrol, Diesels, Crude Oils, there is an emission of Co2, CO, Sulphurs and other harmful chemicals, which are creating a negative impact on the Environment Human Beings and Animals. Hence this is also reducing the quality of living for the Human Beings. We have also heard of depletion of Ozone Layer, because of which the harmful UV Rays of Sun are entering the Earth's Atmosphere and creating harm to overall environment on the Earth. In order to reduce these problems and negative impacts, use of Congress Grass based Bio-Gas and Bio-CNG will help all of us to protect the Earth to much extent from various negative issues.

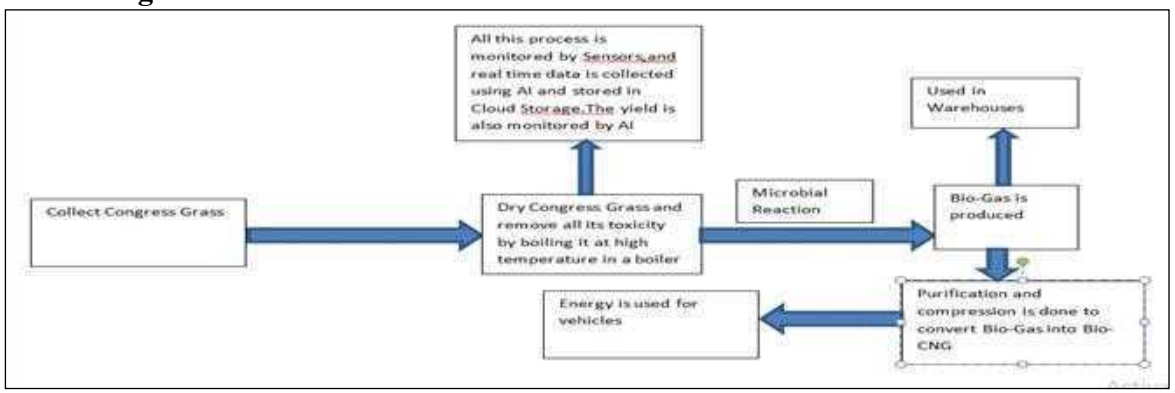
- **Hypothesis:**

Based on Literature and Secondary calculations from one of the research paper from Science Direct, 1 Tonne of Congress Grass produces ~ 33m^3 methane,~9.43 KG of Bio-CNG and ~321kWh of Energy.

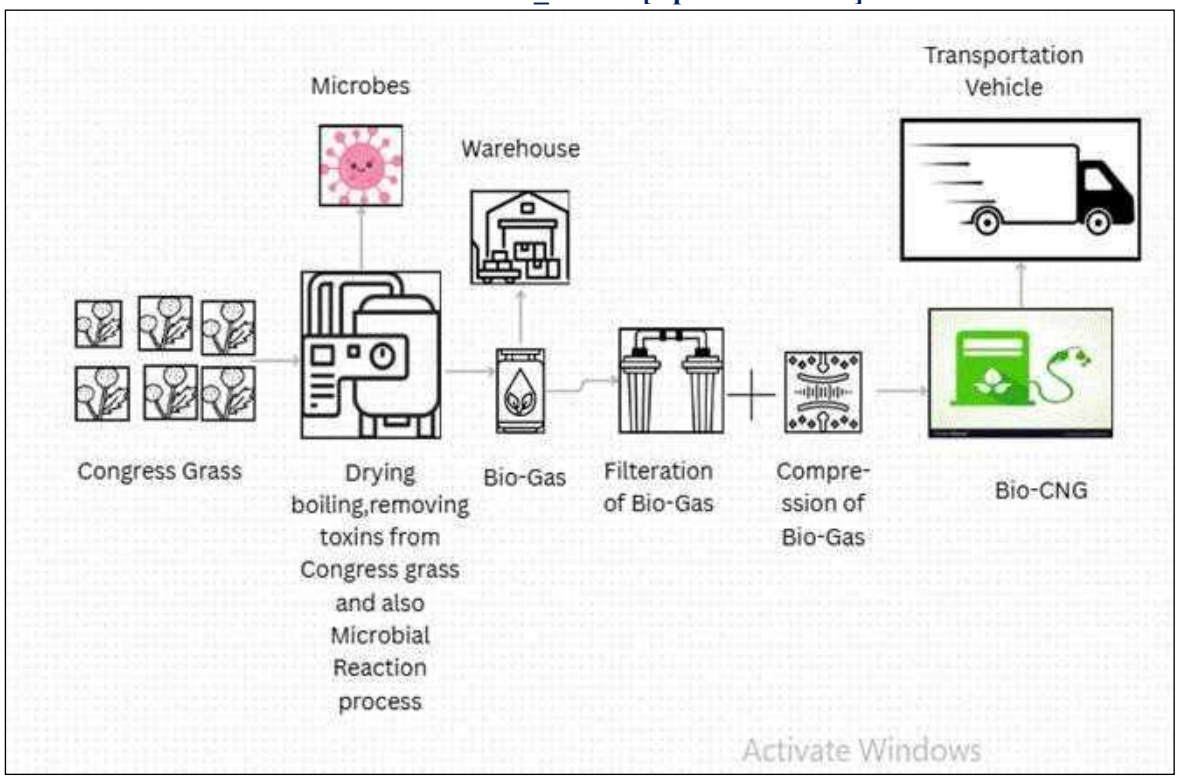
7. Methodology

Step1: Collect Congress Grass.
Step2: Dry it and remove its toxicity by boiling it at high temperature.
Step3: After Microbial Reaction, Bio-Gas is produced, which can be used for Warehouses.
Step4: After purification and compression, Bio-CNG is produced which is used for transportation Vehicles.

- **Diagram**



SYSTEM MODEL



8. Analysis

The above diagram is of the system where Congress Grass is boiled, its toxins are removed, and microbial process is done to convert the Congress Grass into Bio-Gas which is used by Bio-Gas. Further it is filtered and compresses to convert it into Bio-CNG which will be used by Transportation Vehicles. Hence Warehouses do not need Bio-CNG, as Bio-gas is enough which will be used as a power generator for Warehouses.

9. Implementation

The implementation of above system can be done on a huge area, where safety will be considered first during the whole production process of Bio-Gas and Bio-CNG. Hence, this implementation requires a huge investment, but it can also be profitable with the appropriate strategy.

10. Results

The output of the above system is both Bio-Gas, Bio-CNG, which are sustainable fuels, which are derived from Congress Grass through a long process. From the above System, it is analyzed that the System can be launched in any part of the world, and hence employment can be generated, which will lead to the development and also these two products can also be used as an alternative to other polluting fuels.

11. Performance Evaluation

Firstly, standard values, standard performance for the particular year and Budget can be estimated in advance and hence these can be compared with actual values, actual performance and actual profit for that year and then we can say that whether this system will create Profit or Loss in future.

12. Applications

- Congress Grass bases Bio-Gas Can be used for warehouse electricity generation.
- Bio-CNG can be used as an alternative to other harmful fuels for transportation Vehicles.
- These two fuels can also be used as alternatives to other polluting fuels around the world.

Strengths

- Sustainable option.
- Less hazardous than other fuels.
- Less emissions of Toxic Chemicals.
- Leads to employment generation.
- Less Government Taxes related to Environmental Pollution, because of less pollution.

Weaknesses

- Needs proper training to manage the production process.
- Hazardous environment.
- Costly System.
- Microbial reaction takes at least 30 days for the decomposition of the Congress Grass.

13. Conclusion

The main aim of this system is to move towards the sustainable option to protect ourselves as well the environment from the harmful pollutants.

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