



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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Project Title Project T.A.B.I. (The Automated Biodiesel Invention): A Study of the Production and Benefits of Biodiesel	
Abstract Objectives/Goals Our objective is to research, design, and build a cost efficient biodiesel processor, utilizing safe and proper materials, to not only to make biodiesel more accessible to everyone, but also to research the environmental benefits of biodiesel versus traditional diesel. Methods/Materials Using conventional materials easily obtainable at a local hardware store and electronics easily purchased through various websites, our team has found materials suitable to assemble a semi-automated biodiesel processor. Having researched the steps to create biodiesel from waste vegetable oil, we've carefully selected materials such as the correct pump, PVC, static mixer, and solenoids, in order to construct an automated biodiesel processor (T.A.B.I.) that is able to produce biodiesel with a push of the button. Results The completion of our biodiesel processor was, in all, a success. Ultimately, the processor is able to make a max of three gallons of biodiesel in just under an hour. Despite encountering several setbacks, we've managed not only to construct a working biodiesel processor, but also but cut it's cost down to a reasonable price. Combine with it's simplistic design and it's cost-efficiency, this biodiesel processor has the potential to make biodiesel more accessible to everyone and advocate it's benefits. Conclusions/Discussion From our research and construction of T.A.B.I., we have found that it is both feasible and economical to build semi-autonomous biodiesel processors for commercial use. Although home development of biodiesel is possible, a single household may not produce sufficient WWO to make processing economical. One shared processor for a small community is more feasible and a processor for a restaurant is especially efficient. Usage of such processors will cut down on the amount of WWO in landfills which harm the environment. When substituted for diesel, biodiesel is not only more cost effective, but more importantly, a cleaner burning fuel source.	
Summary Statement To research the benefits of biodiesel and explore ways of making it more accessible to the public.	
Help Received Parents helped with transportation, teacher helped acquire chemical materials	