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Automated Single Vessel Home Brewery System

The art of home brewing has been steadily gaining popularity over the past 35 years alongside the rise of craft breweries in North America, so much so that in 2010 there were over 2000 craft breweries in the United States, after starting with only 8 in 1980. The objective of this project is to combine home brewing experience with engineering design, and construct a single vessel brewing system. By maintaining a strict control of key parameters, the brewing process is regulated using a combination of fluid mechanics, heat transfer, digital controls, power systems, embedded robotics and mobile development. The Robotics Operating System (ROS), allows for a design where sensors can be added to a modular setup and provide feedback. By receiving feedback from temperature readings, density measurements and capacitance monitoring, the brewing process can be accurately recorded, shared, and automated by the system. The single vessel design allows for reduced complexity compared to the traditional home brewing method which requires various components, constant monitoring and heavy maintenance.