

## **From Concept to Creation: Developing a Sugar-Level Adjustable tea making and vending Solution**

In Sri Lanka, tea is a staple and a highly desired beverage. In the recent, the preparation involved brewing tea dust by hand in boiling water to suit the maker's tastes. On the other hand, customer desires for less sugar present a big factor in modern tea vending.

In response, we present a novel tea-making machine prototype that makes use of a PID temperature controller for accurate heating control and an ATmega2560 64-bit controller. With the help of this automated system, tea preparation may be tailored to the tastes of the customer, taking into account factors like cup size and sugar content. The machine starts the water boiling process when it is connected to a power source, and an indicator indicates when the operation is finished. Customers enter the number of cups they want and the desired sugar level, with three options available: 1 for minimum, 2 for medium, and 3 for high. The machine pours hot water into the strainer, directs the output to the mixing container for blending, and then successively dispenses tea dust from a container into a strainer, sugar into a mixing container, and so on.

After mixing is finished, customers can grab their personalized drink whenever they want. This inventive equipment not only accommodates personal preferences for tea consumption, but it also establishes a framework for the creation of comparable mechanisms for a variety of herbal beverage formulations.

Further developments in tailored drink preparation technology are made possible by this automated system, which represents a major step in consumer-driven beverage personalization. Its versatility goes beyond tea, indicating that consumers everywhere will soon be able to enjoy customized beverage experiences.