

# Water Level Control Prototype Using Fuzzy Logic Control Optimized by the Cuckoo Search Algorithm Method

## Prototipe Water Level Control Menggunakan Fuzzy Logic Control Yang Dioptimisasi Dengan Metode Cuckoo Search Algorithm

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A boiler is a vessel used to produce water vapor which will be used as heating or propulsion. In the process industry, there are usually boilers that can produce steam to be used to transfer heat to a process. The steam produced by this boiler comes from water that is fed to the boiler and then boiled. After being raised at a certain temperature, the steam is ready to flow to the plant, such as a heater or turbine. In the process of converting water into steam, there are often problems so that the output is not what you want, such as the volume of water that is too large or below the setpoint. The volume of water that does not match the setpoint will cause many problems such as overpressure and overheat which causes the vapor pressure not to the desired specifications. In addition, failure in the control process can also result in system failure which can be fatal, such as damage to the vessel due to poorly controlled feed water which can even cause an explosion because the vessel is not strong enough to withstand the pressure generated [1].

The problems that arise at this time are the Fuzzy method in the Water Level Control System prototype to adjust the long time parameters and poor control accuracy, one of the efforts that is still very likely to be developed is; build an optimization method to solve the complexity of the optimization process, adjust the value of Fuzzy control parameters for a short time and have good control accuracy. The right method is the Cuckoo Search Algorithm (CSA).

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