feed-forward compensation control is necessary to suppress the runaway of white board paper because of the concentration.

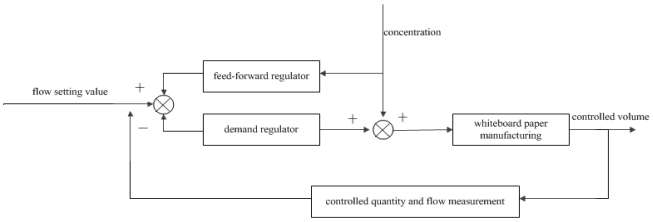


**Figure 2:** Block diagram of whiteboard dry volume control

The feed-forward feedback composite system is characterized by the use of feed-forward control to suppress the interference of the system, and the feedback control is used to suppress other disturbances. When the control system is used, the main disturbance of the system is controlled by feed-forward system, the intermediate variable is controlled by inner loop feedback, and the outer loop feedback control is used to control the system.

Using Simulink toolbox of MATLAB to simulate whiteboard control system, combining with the approximate transfer function of system identification to adjust feed-forward control system and analyze the feedback control system's stability control channel, and set a feedback control system.

The transfer function of the interference channel is as follows, $G_f(s)=\frac{5e^{-5s}}{(8s+1)}$, The partial transfer function of the system is as follows, $G_1(s)=\frac{2e^{-3s}}{5s+1}, G_2(s)=\frac{3e^{-5s}}{10s+1}$, The feedback loop transfer function is $H(s)=1$.

Using Simulink toolbox built according to a control method of the system model, the first use of the tuning parameters for constructing feedback control system, and gives the simulation results of Simulink curve as shown in Figure 3. Then the feed-forward link is added to further adjust the simulation as shown in Figure 4. Among them, the external disturbance uses the given value of 5, the interference source is 2, and the superposition amplitude is + 1 random interference signal.

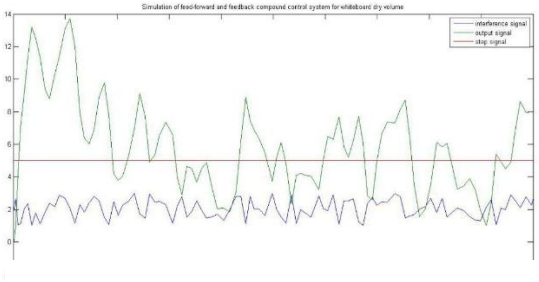


**Figure 3:** Simulation of dry volume feedback control system for white board

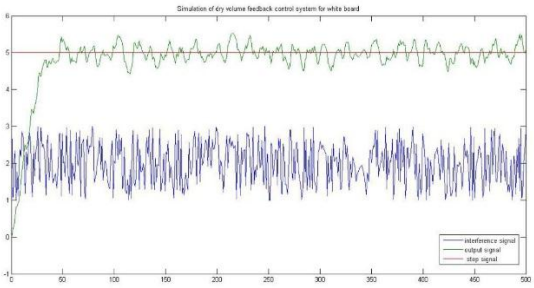


**Figure 4:** Simulation of feed-forward and feedback compound control system for whiteboard dry volume

The simulation results show that compared with using the feedback control system can make the system more stable feed-forward feedback control system, can make a better suppression of disturbance in the random signal into the state, to further enhance the performance of the system, can be used in industrial production, it has good application value.

## 4. CONCLUSION

After using the control function of feed-forward compensation, it effectively improve the quality of control system, referring to the relevant industry data ,it can be concluded that even when the concentration of each layer slurry has a larger fluctuation, feed-forward feedback system can accurately control the white paper dry weight, and greatly decrease rejection rate , so improve the quality of the products.。

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