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## Wave Control Using Machine Vision in the Finishin Mill

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In the hot strip rolling process, the reheating furnace heats the slab to a suitable temperature for rolling. The roughing mill then processes the slab, extracted from the reheating furnace, into a bar, and the finishing mill ultimately produces strips of the desired size as requested by the customer. In the cooling section, the material is processed to satisfy the customer's required properties, and finally, the downcoiler coils the strip to produce the hot-rolled coil.

Production automation and enhancing product quality have always been key objectives pursued by steel companies. With the increasing demand for higher-quality hot-rolled strip shapes, strip flatness variation during rolling in the finishing mill has received significant attention and should be considered in online strip shape control.

Strip flatness control in the hot rolling process is a critical control for preventing defects and improving flatness during rolling. This process typically involves controlling gap leveling or benders, with the control often performed manually by operators through visual observation.

In this study, we aim to improve the waves generated during the rolling process by using machine vision to measure and quantify the waves. Additionally, we seek to develop a control logic to manage these waves in real-time during rolling.

Ultimately, the objective is to automate the previously manual measurement and control processes, thereby resolving the associated issues.

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