

Title:

AUTOMATIC CONTROL OF TWO-WAY TUNNELS WITH SIMPLE
LONGITUDINAL VENTILATION

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ABSTRACT

An effective automatic control system (FCVC) is introduced for relatively long, two-way tunnels with longitudinal ventilation. Although it is increasingly rare to build long tunnels of this type, many exist already. The proposed system was developed especially for responding to fire, but it is also effective in routine operation, easily out-performing feed-back, feed-forward and AI-Fuzzy control. The effectiveness of the method is demonstrated by using it to control a virtual tunnel. Its tolerance of unavoidable measurement errors in practical operation is assessed by deliberate falsification of values determined by the virtual tunnel at sensor locations. The control method is equally suitable for fixed-speed or variable-speed fans, but the latter are recommended on practical and environmental grounds.

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