Spanning trail with Independence number

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An independent set $S$ of graph $G$ is a vertex subset such that any two vertices in $S$ are not adjacent with each other. The independence number of graph $G$, denoted by $\alpha(G)$, is the cardinality of the maximum independent set in $G$. Let $\kappa'(G)$ denote the edge connectivity of $G$. I proved that if $\kappa'(G) \geq \max\{2, \alpha(G) - 3\}$, then $G$ has a spanning trail. This improves the former result.