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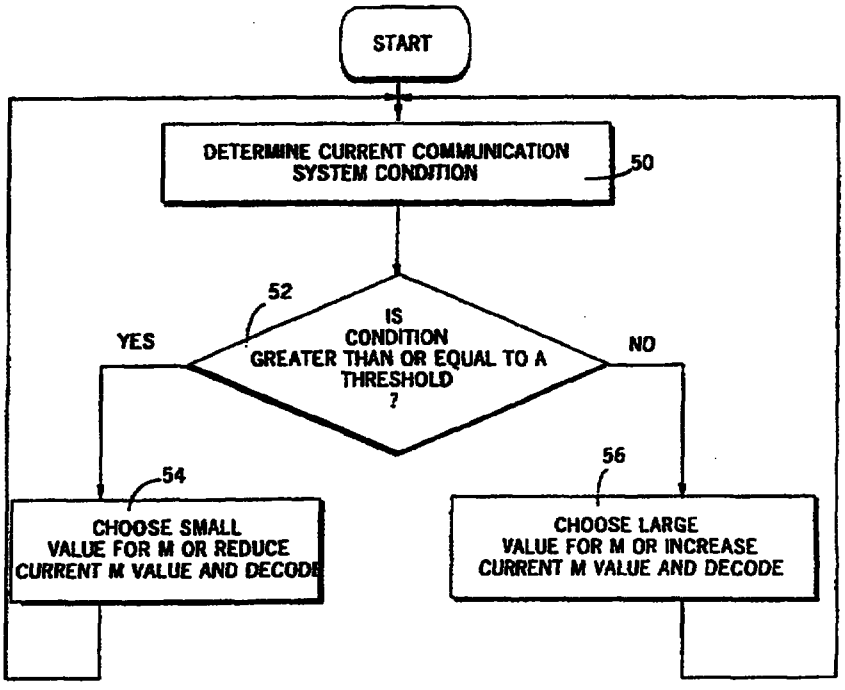
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(54) Title: METHOD AND APPARATUS FOR SYMBOL DECODING USING A VARIABLE NUMBER OF SURVIVOR PATHS

(57) Abstract

A low complexity, high performance trellis decoder adapts the complexity of the trellis decoding process based on a current condition of the communications system. A trellis structure of nodes and branches is developed to decode the sequence of symbols received over a communications channel. Each set of nodes in the trellis represents the possible values of a received symbol at one time instant. Each branch defines a specific transition between nodes at different time instants, and each branch has an associated branch metric or weight. A linkage of branches between the nodes and the trellis defines a path through the trellis that represents one possible symbol sequence, and an accumulated metric/weight is generated for each possible path through the trellis. A variable number M survivor paths through the trellis is determined based on their accumulated path metric/weights. The value of the variable M depends on the current condition of the communications system. Once the value of M is adapted to the current condition, the sequence of received symbols is decoded using M survivor paths through the trellis.



* (Referred to in PCT Gazette No. 50/1997, Section II)