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Faisal Shah Khan* (faisal.khan@ku.ac.ae), PO Box 127788, Abu Dhabi, 127788, United Arab Emirates. *Nash embedding: a road map to realizing quantum hardware.*

The non-Euclidean nature of the state-space of qubits (and qudits in general) gives rise to the problem of practically implementing quantum circuits in physical hardware which necessarily resides in the Euclidean space \mathbb{R}^3 . On the other hand, the Euclidean nature of bits (and dits in general) makes the implementation of reversible circuits in physical hardware relatively straight forward. I offer here a road-map to solving this problem in which the Nash embedding theorem isometrically maps qubits into bits and a quantum circuit into an equivalent reversible one, followed by the embedding of the resulting reversible circuit into \mathbb{R}^3 as a hardware graph. (Received September 07, 2019)