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Our project proposes a 3-step process which will integrate the currently available robotic technologies with our extensive research and development of a promising energy saving facade applicatoin technology using thermoelectrics to achieve economically feasible, energy-efficient, time-efficient and safe methods of building skin retrofits.

Step 01 utilizes robotic technologies for initial data collection and inspection of the current physical state and performance of building facades.

Step 02 integrates our current research and design solution optimization on facade retrofits using computational software and the UMass developed thermoelectric (TE) facade system that generates energy using thermoelectric modules (TEMs) based on environmental factors and data from Step 01.

Step 03 applies robotic technologies to fabricate and assemble components and prototypes of full scale TE facade systems based on the optimally performing and most economic design solution determined in Step 02.