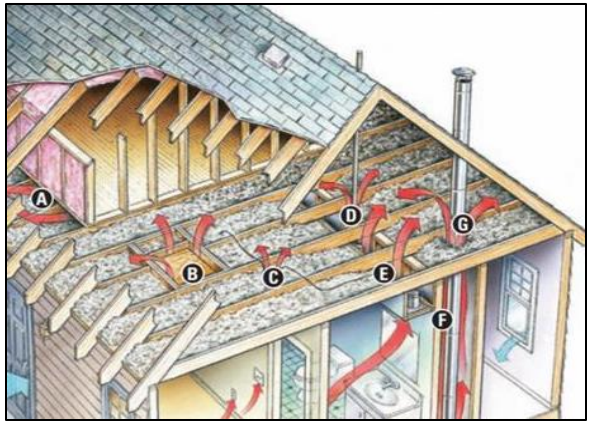
PARIS: Precise Air-sealing Robot for Inaccessible Spaces

Team: NU Team PARIS (Boston, MA)

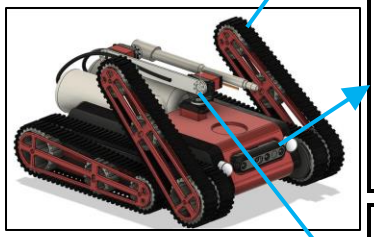
Retrofit Challenge



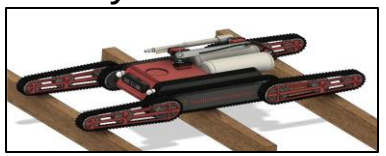
Attic crawlspace contributes to significant heat loss, and its air-sealing takes 50% of retrofitting time.

However, it is difficult for human workers to access crawlspace, and there are full of obstacles and potential hazards (e.g., asbestos, electric shock, particulate inhalation).

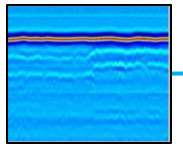
Proposed Solution



Mobility with advanced drive system

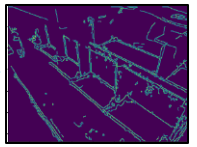


Inspection/Mapping via sensor fusion

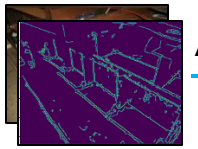


Construct

3D feature map



Retrofitting with targeted sealant application



Analysis

Spraying

The team will develop a rover to inspect/map/retrofit attic crawlspace with autonomous decision making and path planning.

Team & Partners

NU Team PARIS consists of experts from Northeastern University with expertise in smart building technologies, robotics, and subsurface sensing.

Partners include MassCEC and Revise, major players in home energy assessment and retrofitting in the New England area, to support commercialization of the solution.