WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

SafeStep

Making independent living safer, one step at a time

-Srishti Lodha
Created for the 100-hour Challenge

THE PROBLEM

Bathroom Falls Are a Silent Crisis

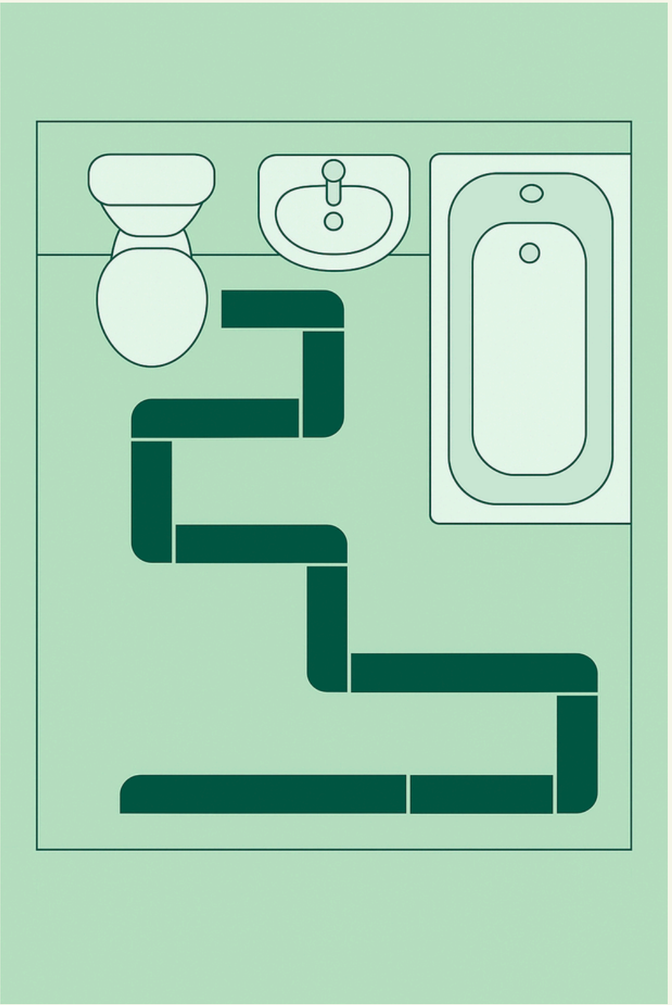
- **3 million+** older adults treated for fall injuries annually
- **80%** of all home falls occur in bathrooms
- **#1** cause of injury-related death for 65+
- Average senior remains on the floor **30 - 90 mins** after a fall, causing dehydration, ulcers, psychological trauma, increased mortality, etc.
- **Existing solutions** must be worn, require charging, are often forgotten or refused, are removed during showers/bathroom use, or are expensive

Introducing SafeStep

Passive floor-mounted fall detection strip

A thin adhesive strip that installs on the bathroom floor and automatically detects falls through:

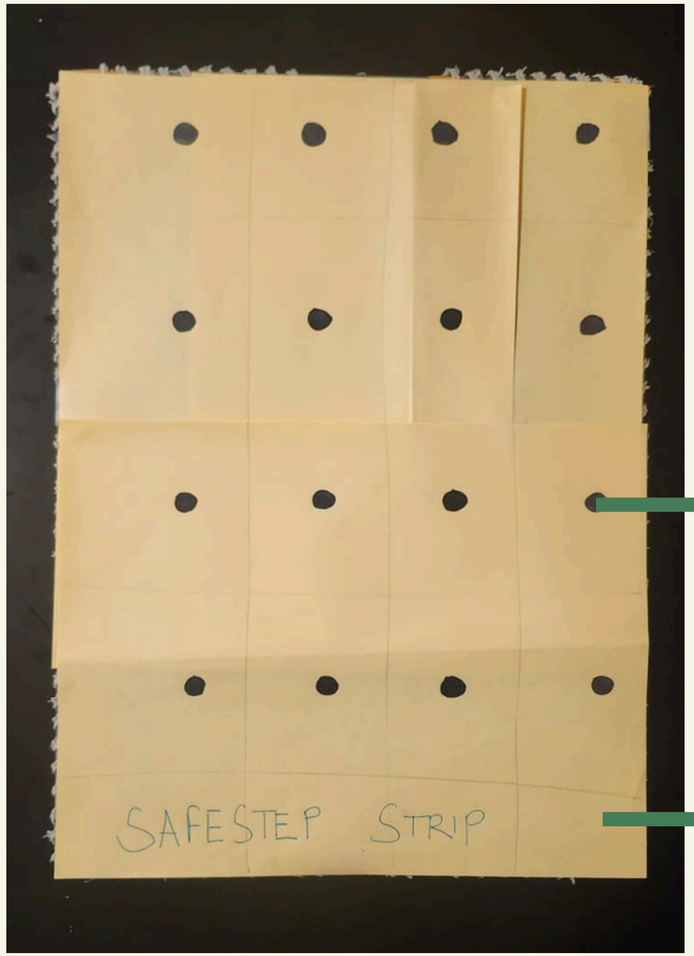
- Pressure change detection
- Light-interruption sensing
- Simple alert activation
- No user action needed, No charging, Always on



Sample Layout

Prototype part I

Materials

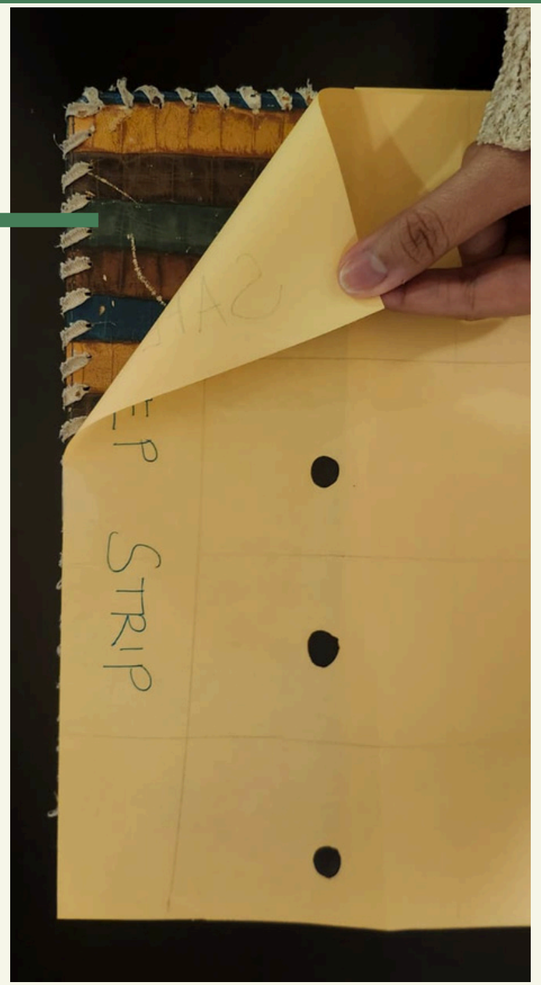


One section of the strip

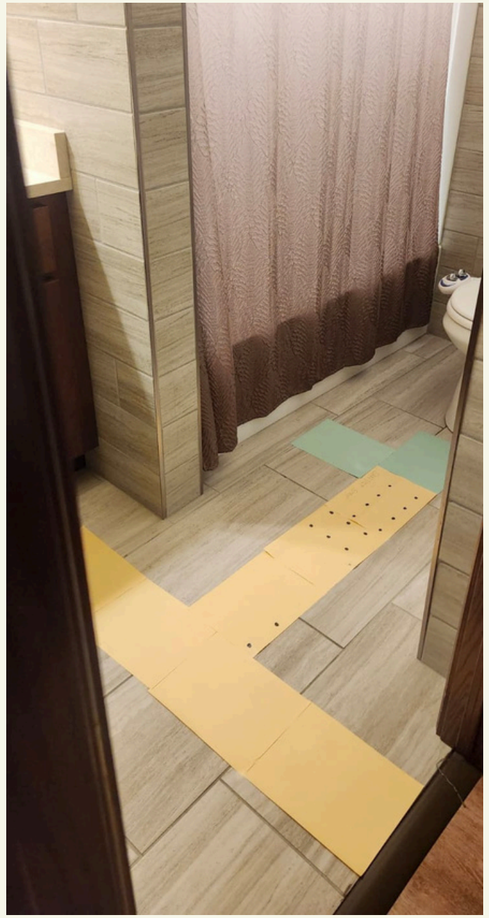
Cardboard representing pressure plate

Invisible light beam emitter/reciever

Waterproof and slip-proof cover



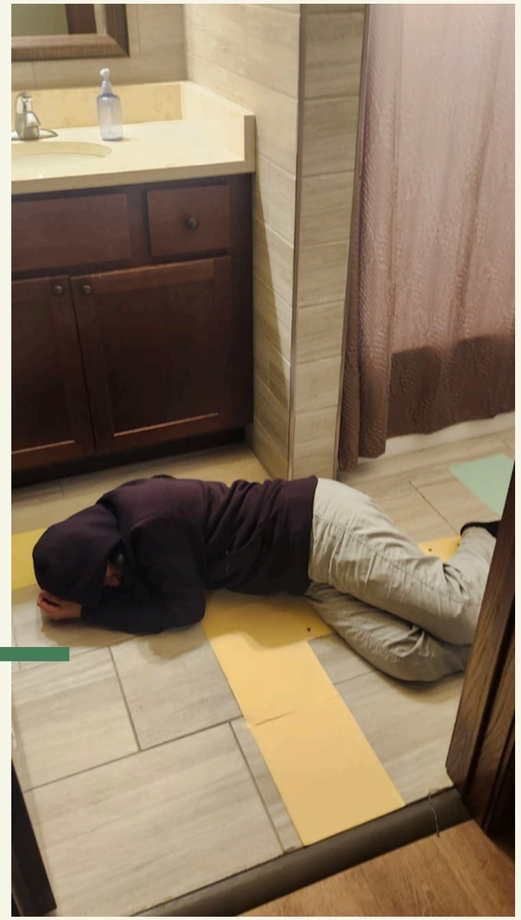
Prototype part II



Modular strips strategically cover the entire floor

Pressure sensors and light beam sensor coverage detects person's absence or movement

Sudden loss of pressure and significantly higher beam coverage signal a fall



Fall triggers automatic alert response;
Sends mobile notification, Notifies loved ones, Produces local sound and caregiver alerts

Target Users

Seniors living alone
Mobility-challenged individuals
Nursing homes
Hospitals
Public restrooms
Assisted living facilities
...and so on

Benefits and Impact

Easy to use
Low making costs ($3-$5 per unit)
Reduces emergency response time
Reduces caregiver stress
Supports independent living
Saves lives