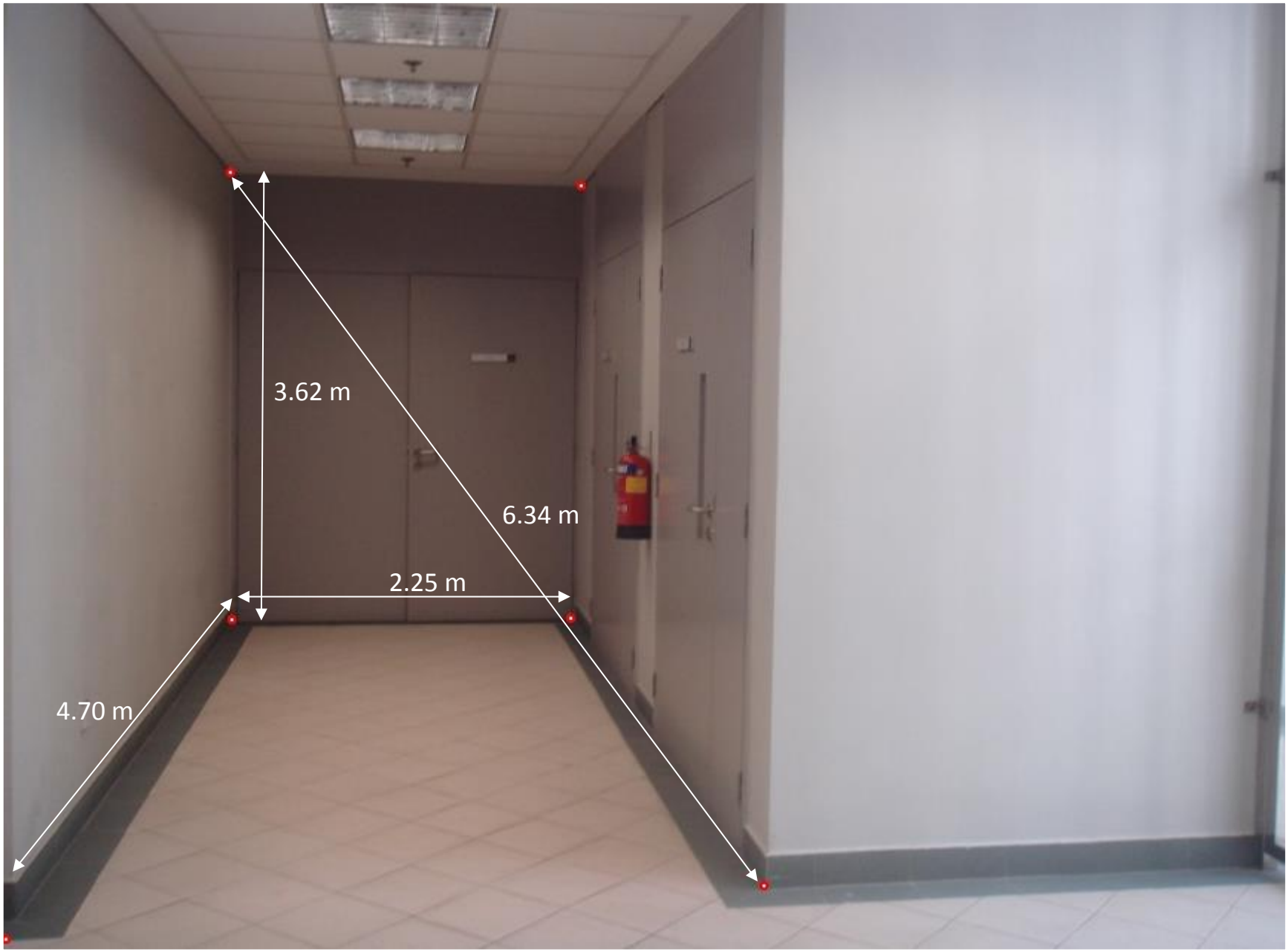
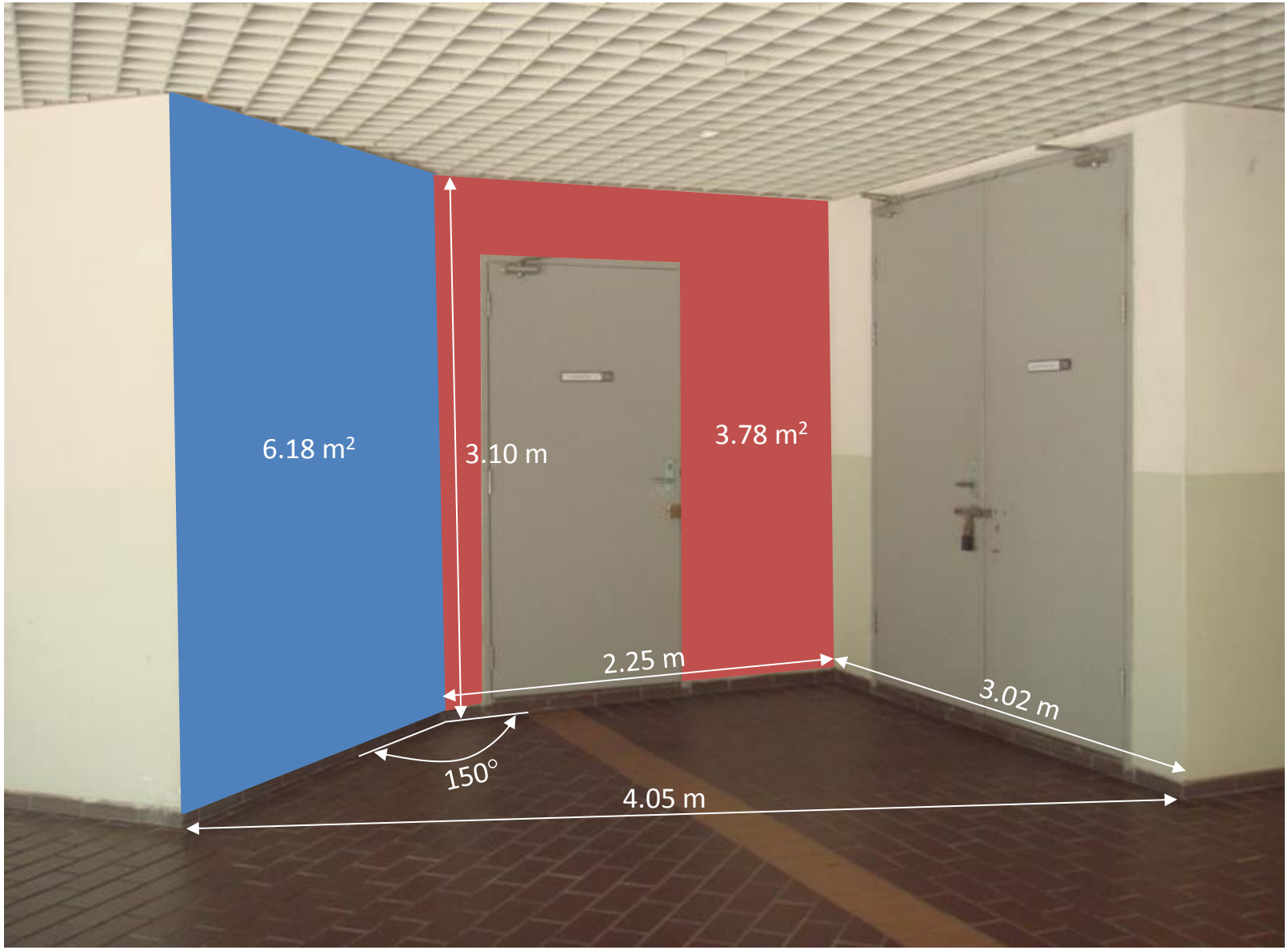
Making Measurements using Photographs

Associate Professor Lee Yong Tsui
School of Mechanical and Aerospace Engineering
Nanyang Technological University

What We Are Offering

- Fast and accurate measurements of the interior of rooms any time, anywhere from photographs.
- Ability to measure linear distances, areas, angles, etc.
- Graphically recording and display of the dimensions.


3.62 m
6.34 m
2.25 m
4.70 m


6.18 m²
3.10 m
3.78 m²
2.25 m
3.02 m
150°
4.05 m

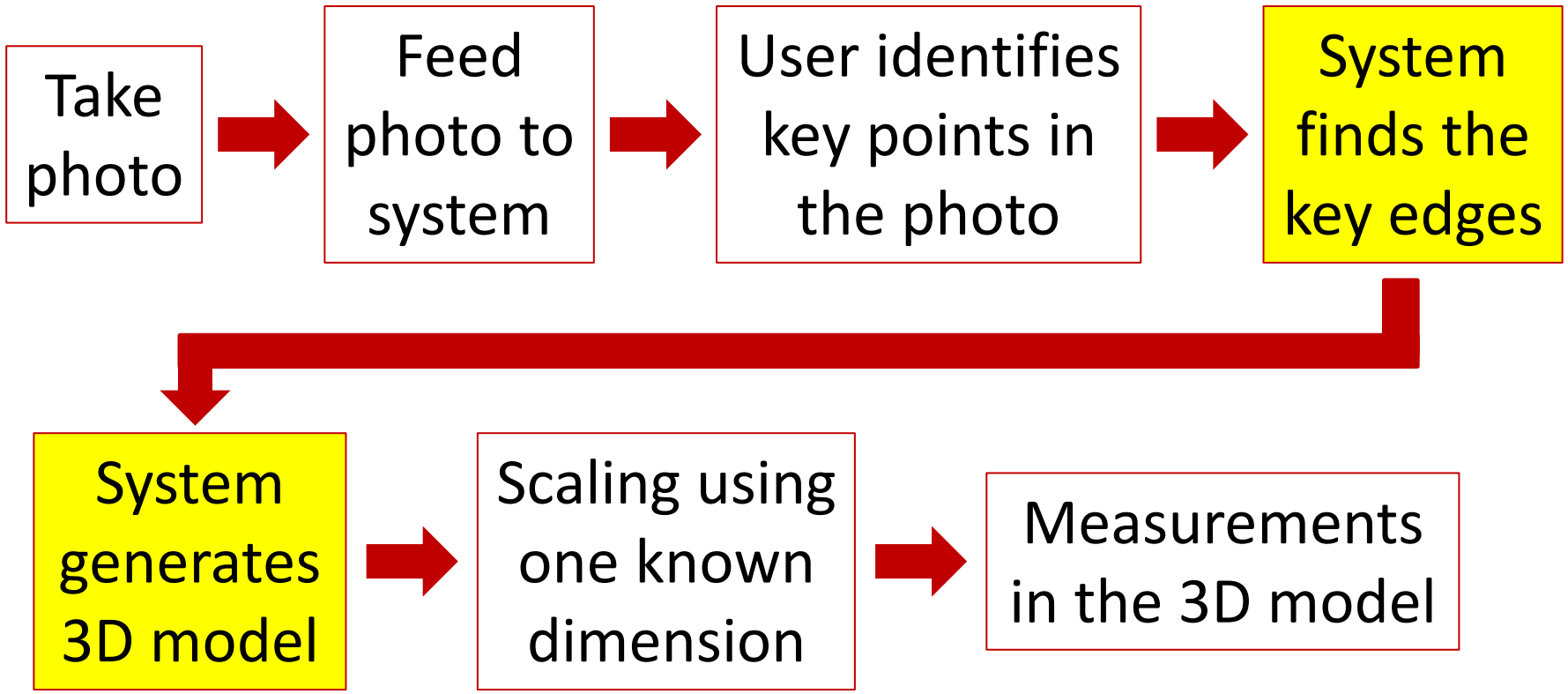
What people do now

- Linear measurements using tape or laser guns
- Discrete measurements made individually

The issues you may have currently

- Discrete measurements taken on site
- Difficulty with inaccessible positions
- Need to make new trips if an essential measurement is missing
- Manual recording and storage of the data
- You cannot easily measure
  - Areas
  - Angles
  - Inclinations

The new process



Some FAQs

What is the accuracy?

- We are working towards 1 mm in 1 m.
- But this depends on the resolution of the photograph.

What is the required resolution?

- The higher the resolution the better.
- However, it depends on the scale of the object in the photo too.

What camera can we use?

- Any camera, with as little distortion as possible.

What distortion?

- Every camera, however good, has inherent distortions. This needs to be corrected.
- We can correct photographs with small distortions.
- We can't deal with fish eye lenses.

What are the limitations?

- Measure only areas within the photograph
- Must have straight lines and flat surfaces
- Not yet able to deal with curved surfaces

Thank you.