

Sun-sensitive Origami Blind

Summer Semester 2017

Interdisciplinary International Interface Design Master Class

Prof. Dr. Jens Geelhaar

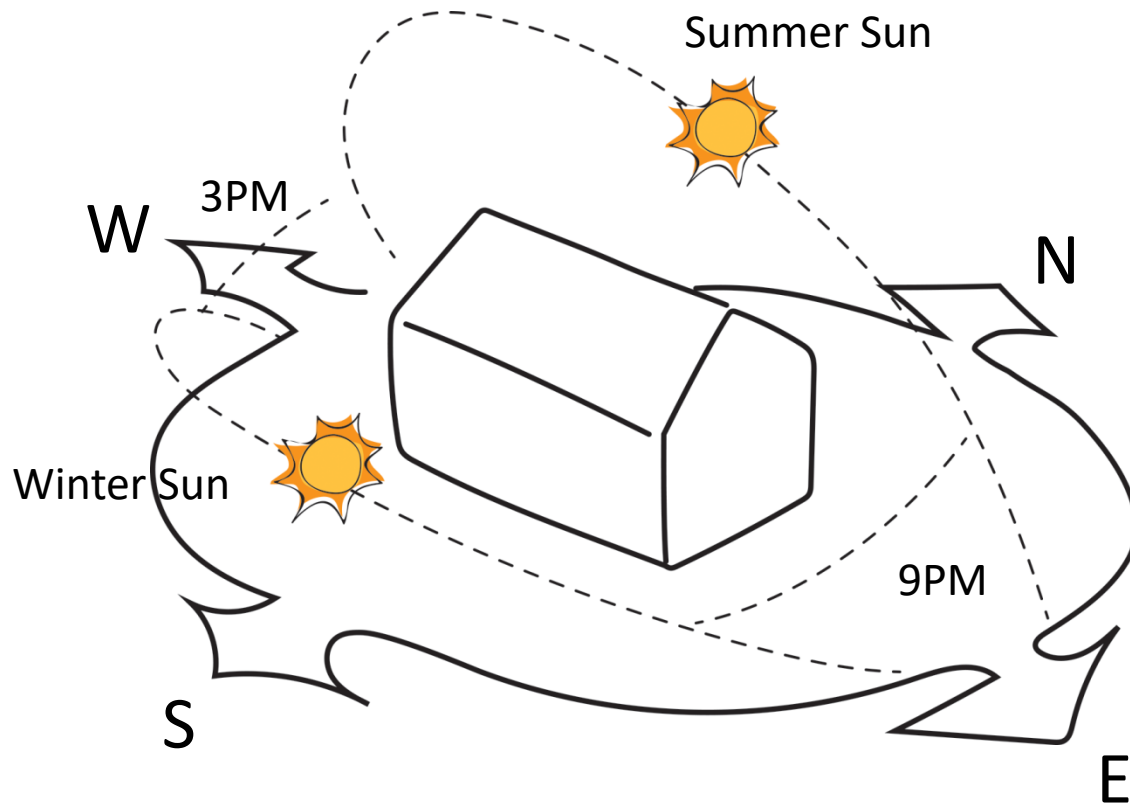
Presented by: Chanthorn Vinitwatanakhun (117604)

M. Sc. in Media Architecture

Proposal

- Interface between the Sun and an Origami
- Three-dimensional Interaction
- Integrating Media into Architecture

Sun Orientation

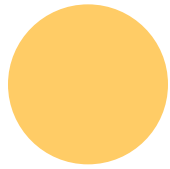


Sun Orientation and Blinding

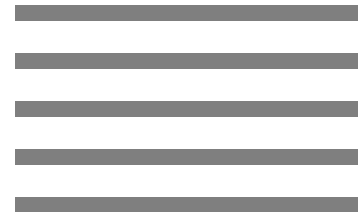
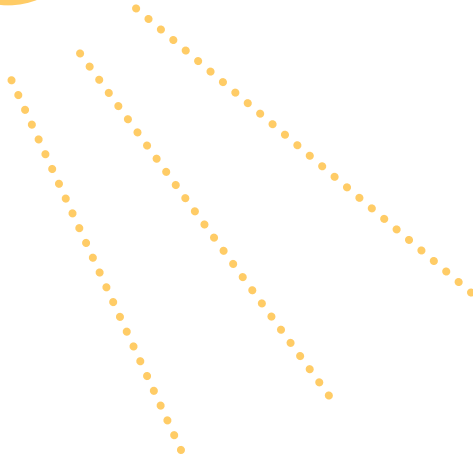
Low Sun: Vertical Blinding



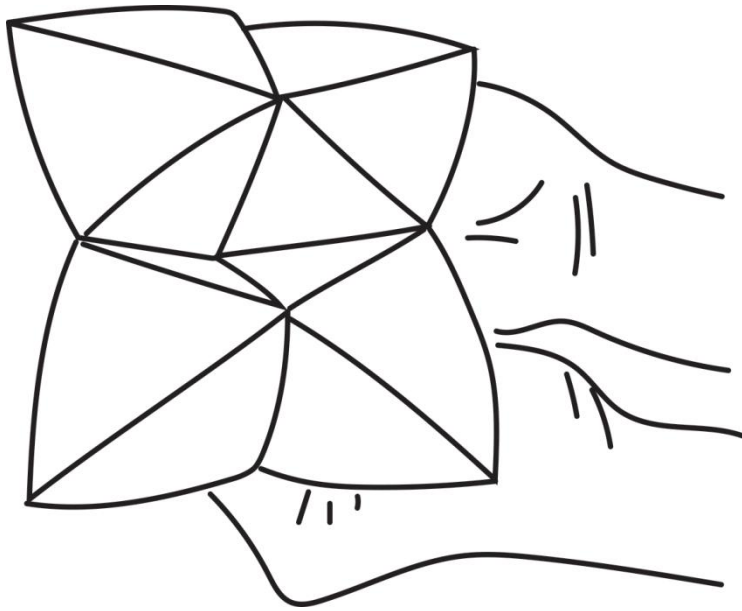
Sun Orientation and Blinding



High Sun: Horizontal Blinding



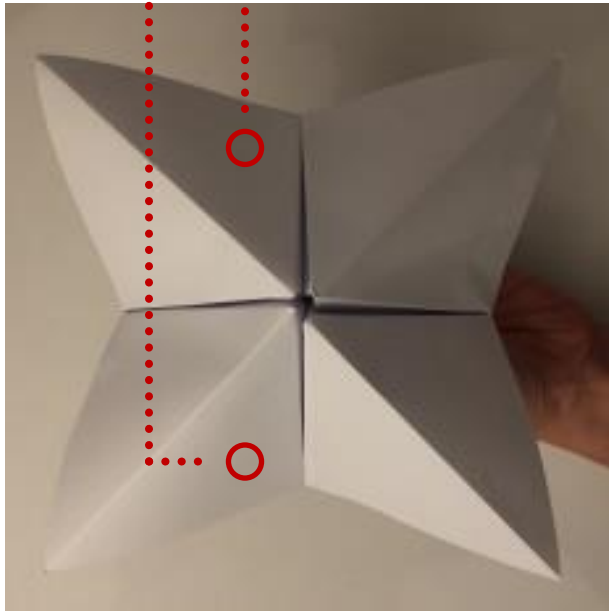
Form Inspiration: Cootie Catcher



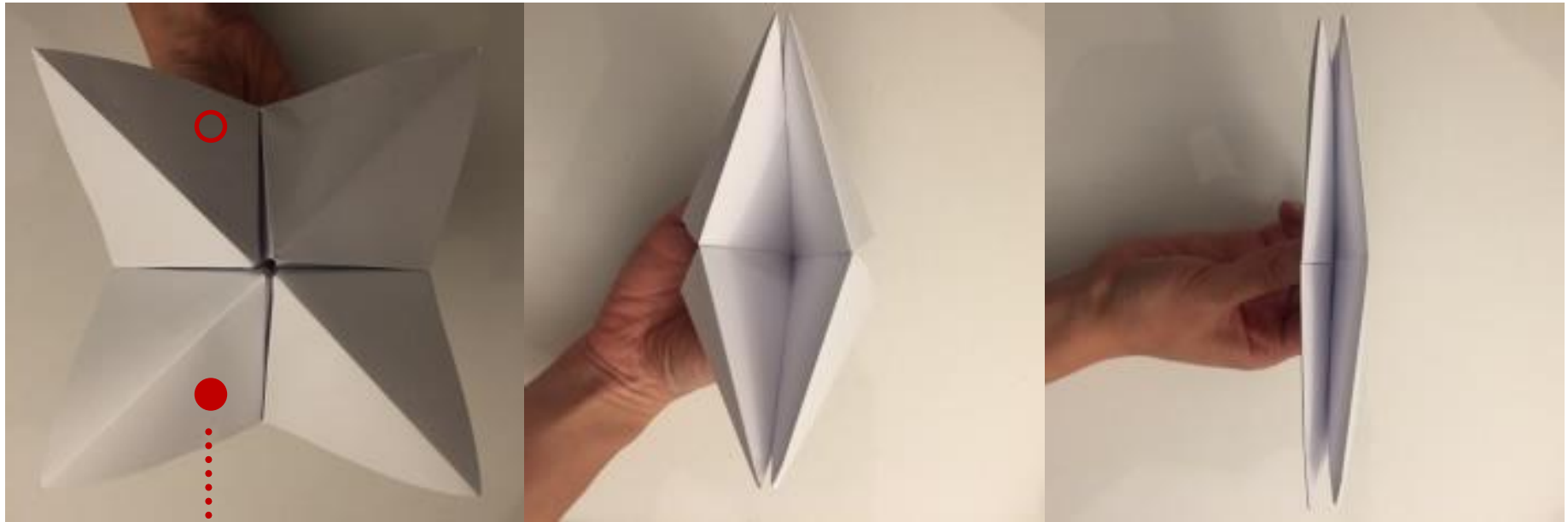
- Fortune-telling as a metaphor of weather forecast
- Flexible movement
- Angled

Movements of Origami: Original

Photoresistors



Movements of Origami: Vertical



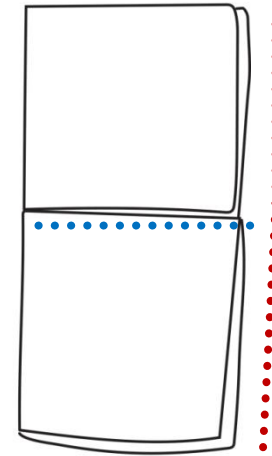
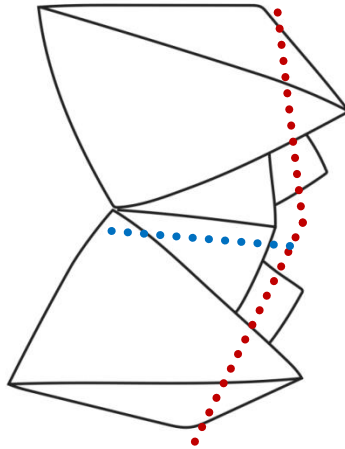
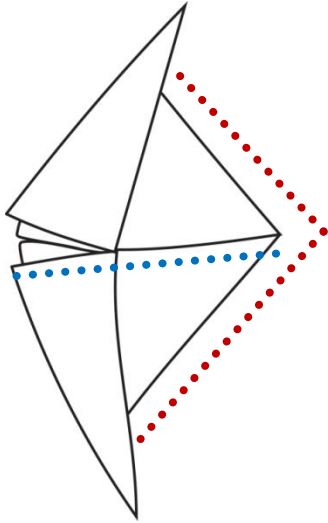
When the Sun is low, the lower Photoresistor will be activated, causing the origami to change to vertical form

Movements of Origami: Horizontal

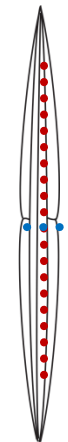
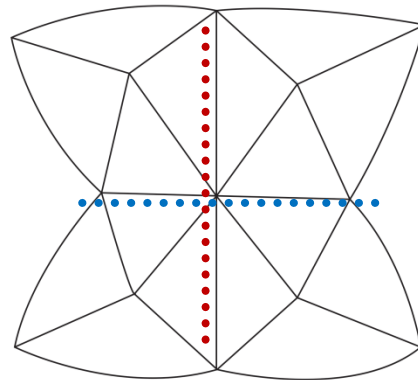
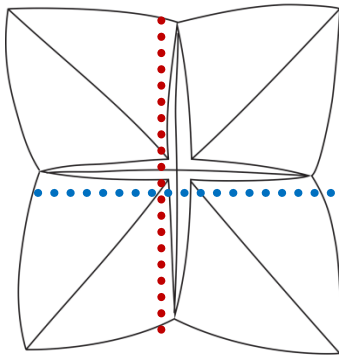


When the Sun is high, the higher Photoresistor will be activated, causing the origami to change to horizontal form

Movements of Origami: Vertical

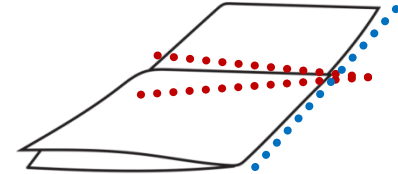
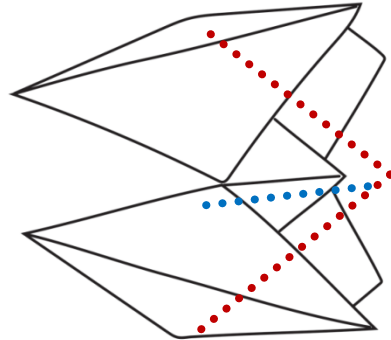
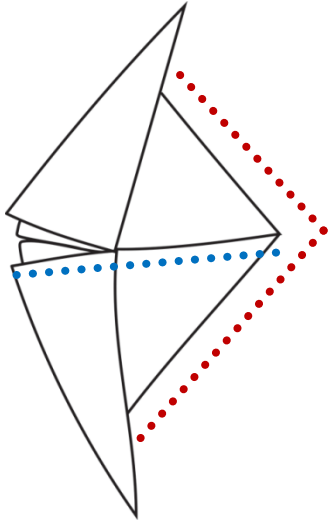


Side View

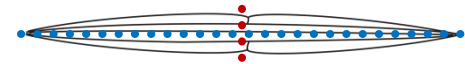
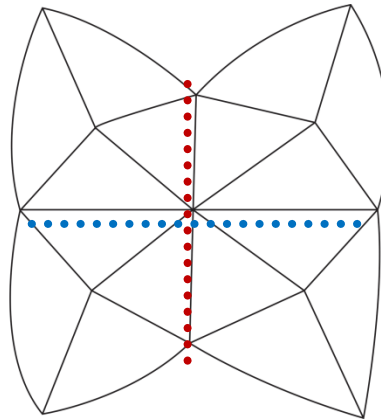
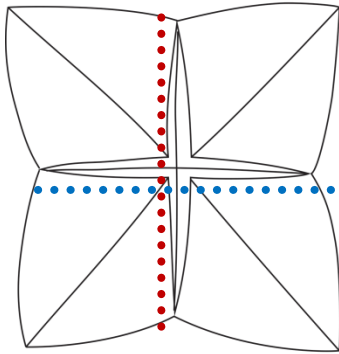


Back View

Movements of Origami: Horizontal

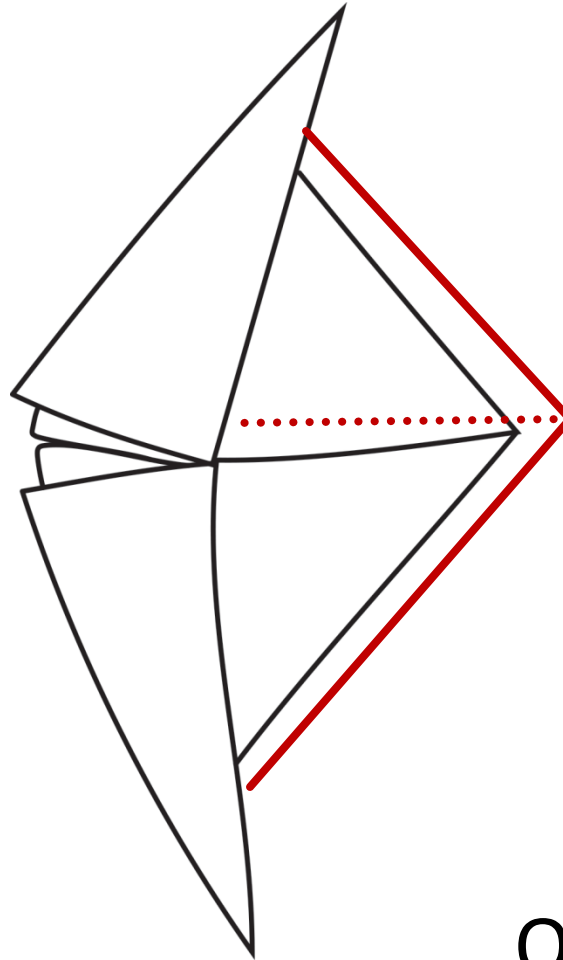


Side View



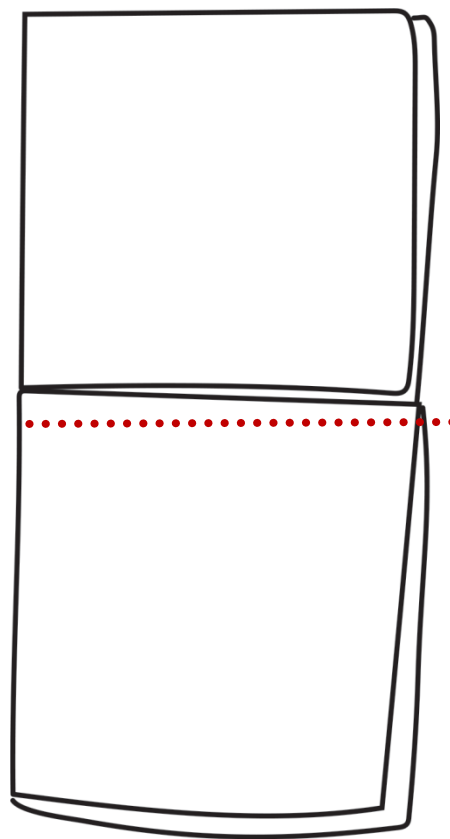
Back View

Mechanism: y-axis



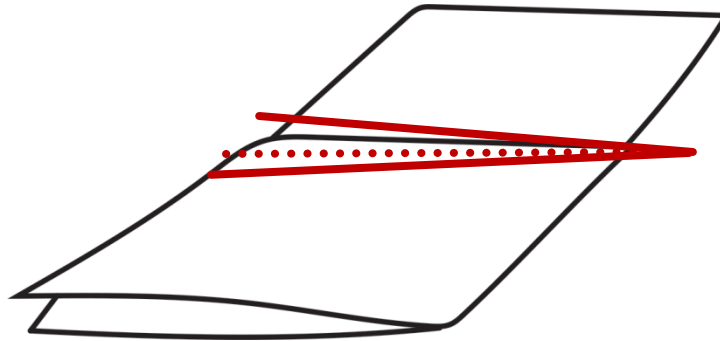
Original Form: 45°

Mechanism: y-axis



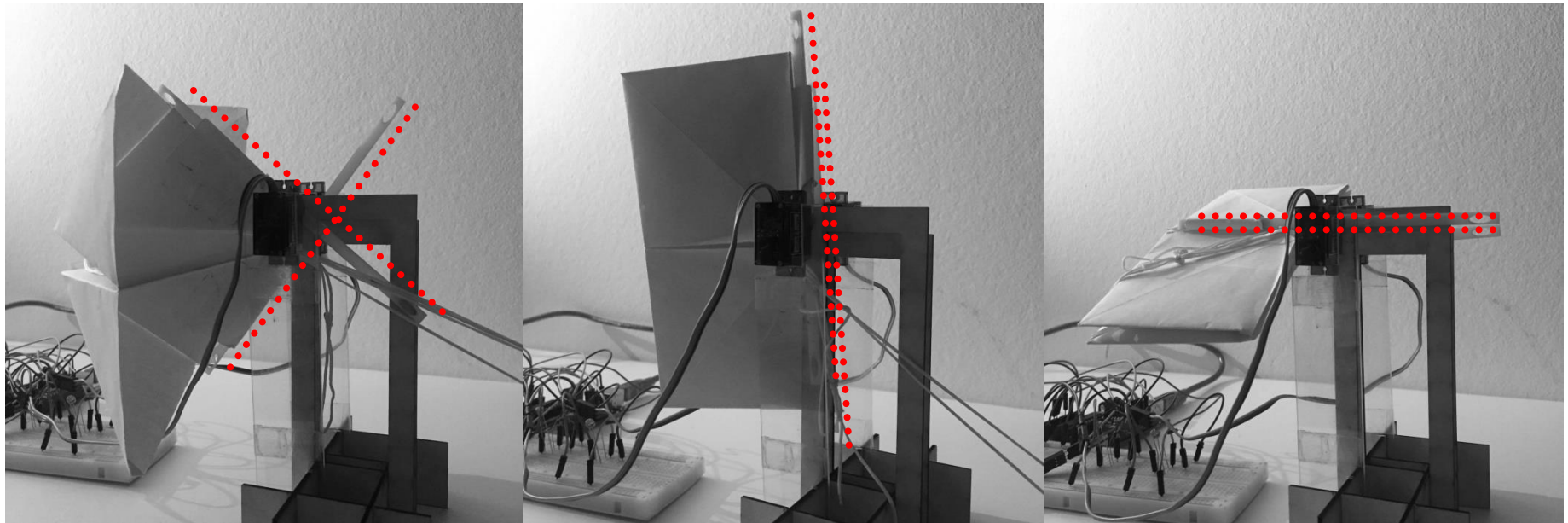
Vertical Form: 90°

Mechanism: y-axis



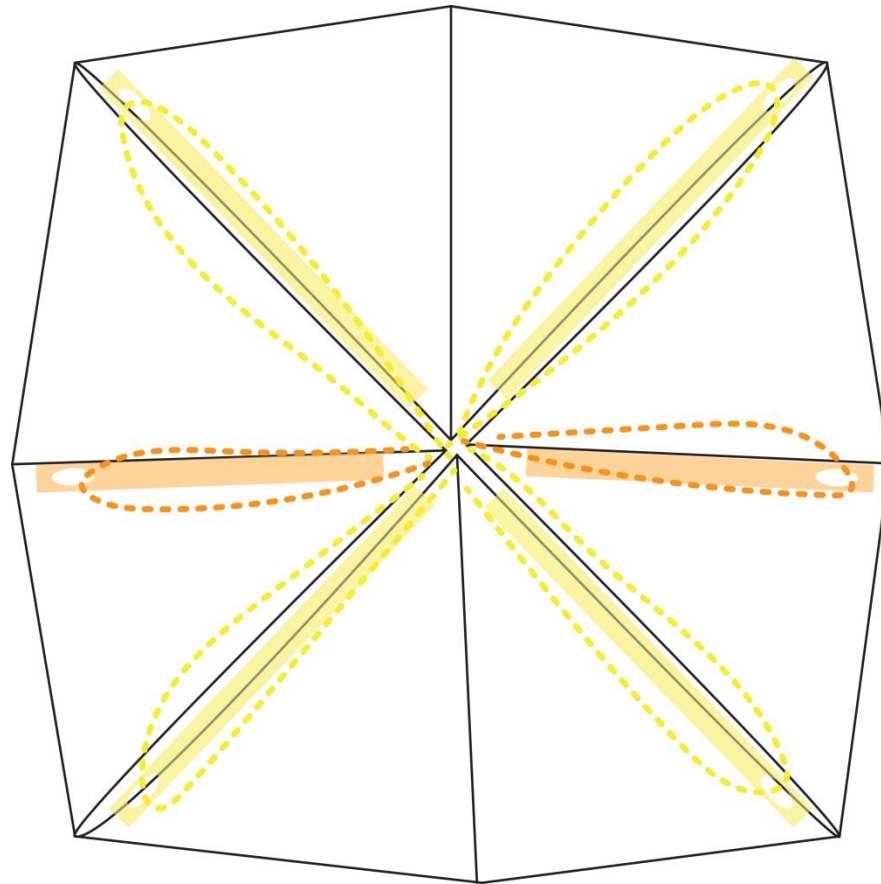
Horizontal Form: 0°

Mechanism

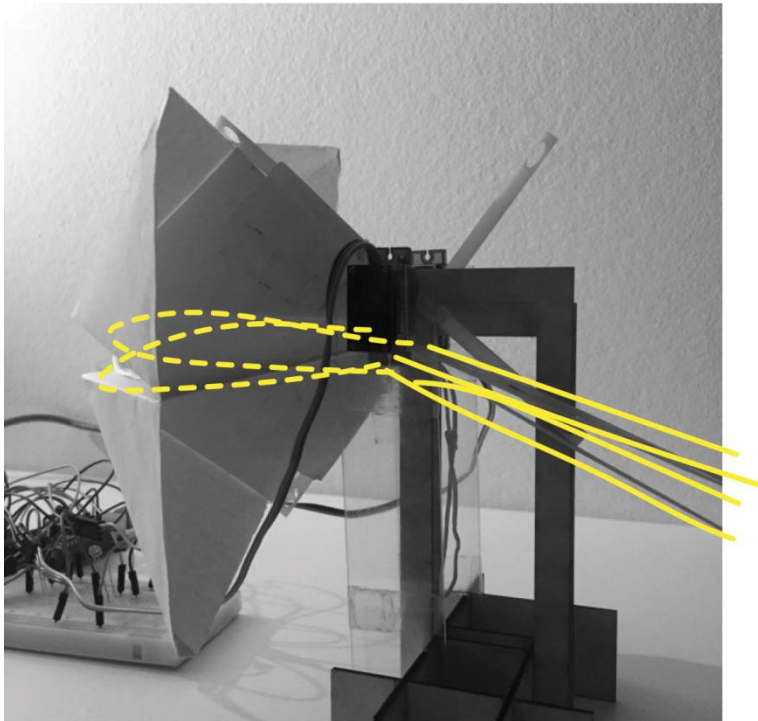


Two supports on y-axis
controlled by two Servo motors

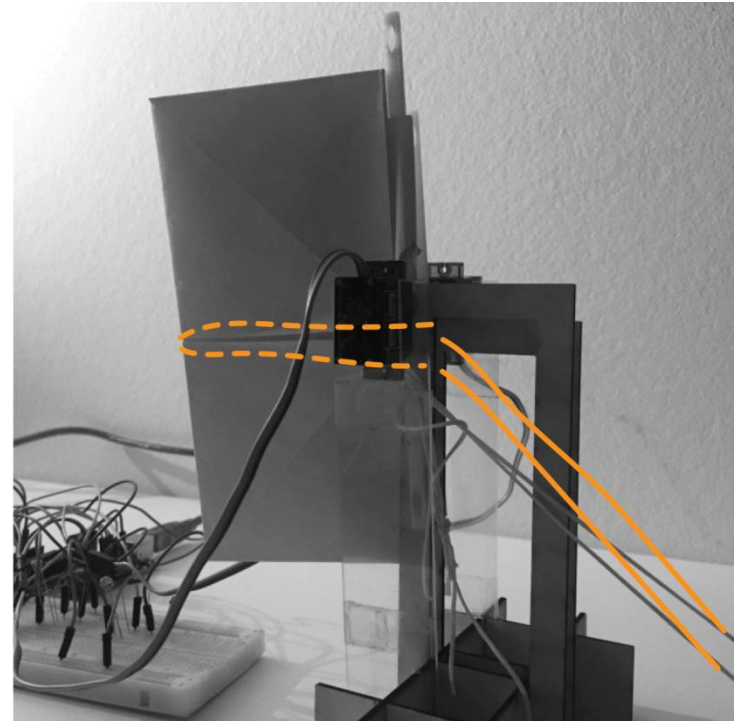
Mechanism: Drawing Strings



Mechanism: Drawing Strings



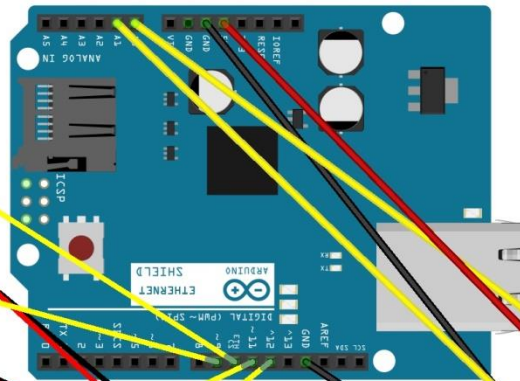
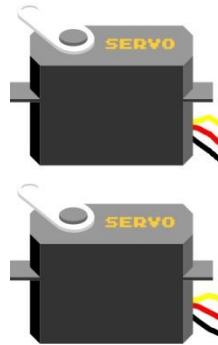
One Servo motor
pulling the corners
of the Original Form



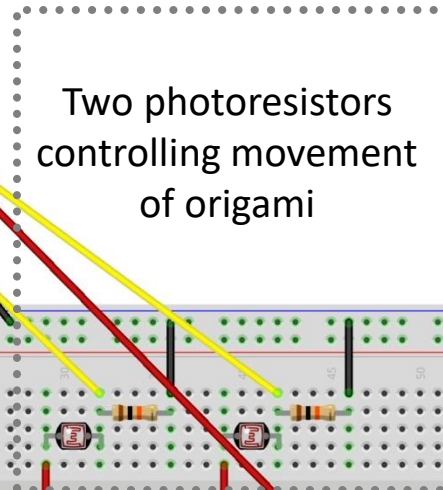
One Servo motor
pulling the sides
of the Vertical Form

Electronics

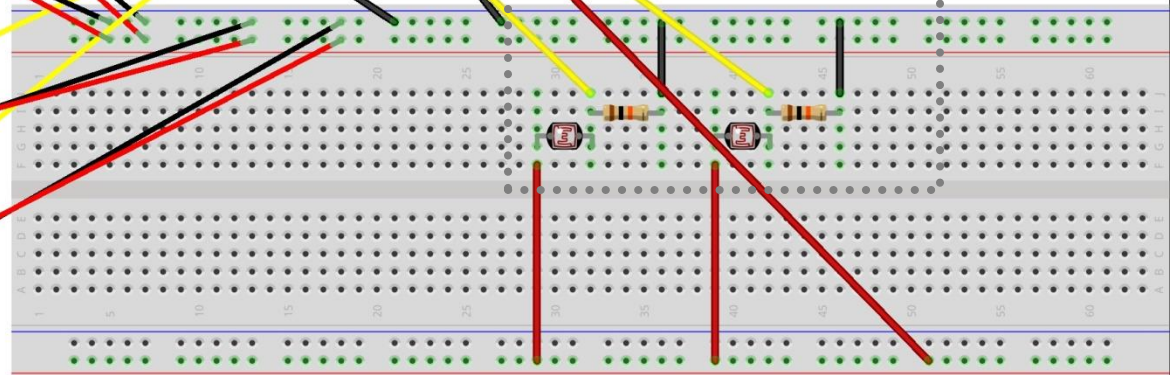
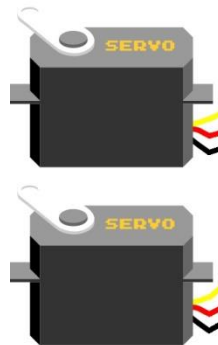
Two servo motors
drawing strings



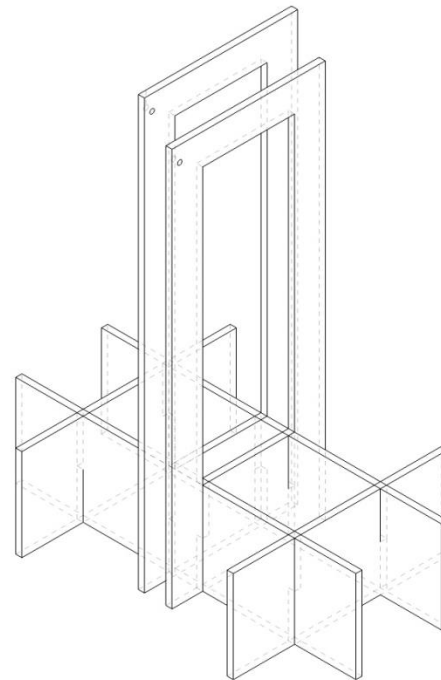
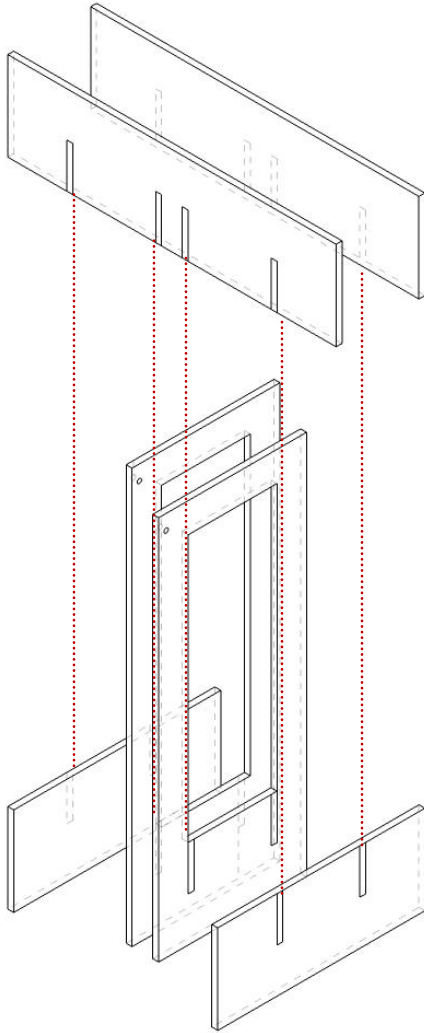
Two photoresistors
controlling movement
of origami



Two servo motors
controlling
supports

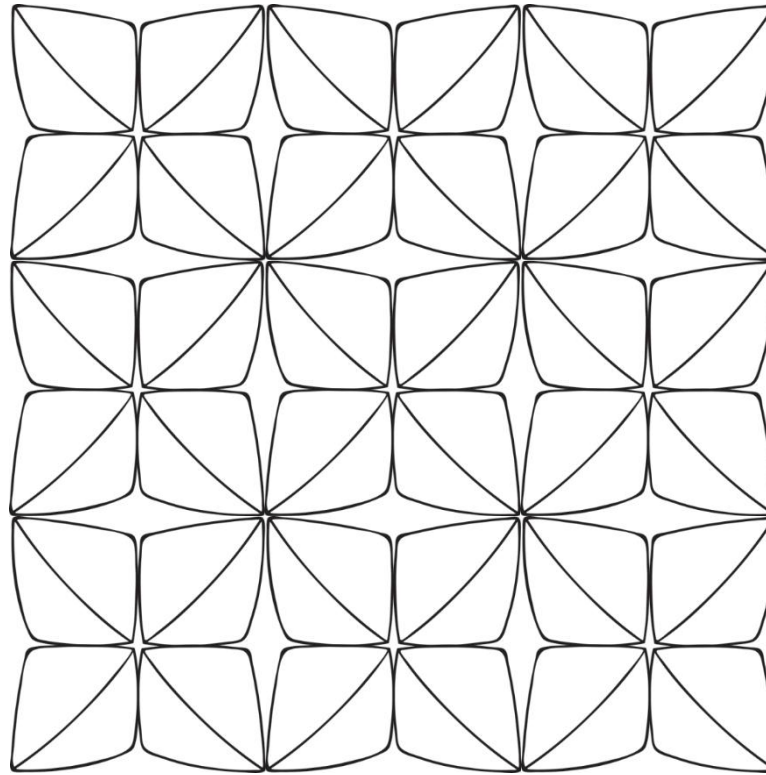


Structure





Modular System



Finally, many origamis will form a panel that will complete a blind