

FIRST[®] LEGO[®] League **TUTORIALS**

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Passive Attachments

By Sanjay and Arvind Seshan



ROBOT DESIGN LESSON

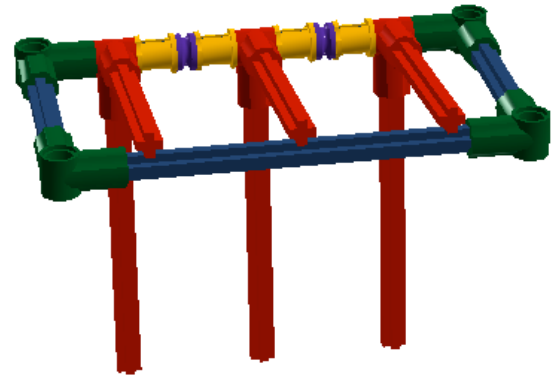
WHAT IS AN ATTACHMENT?

- A mechanism you build that can assist your robot in accomplishing a task (e.g. pick up an object, drop off an object)
- This mechanism is “attached” to the base robot
- For a competition robot, the goal is to design attachments that work consistently every time and are easy to add/remove



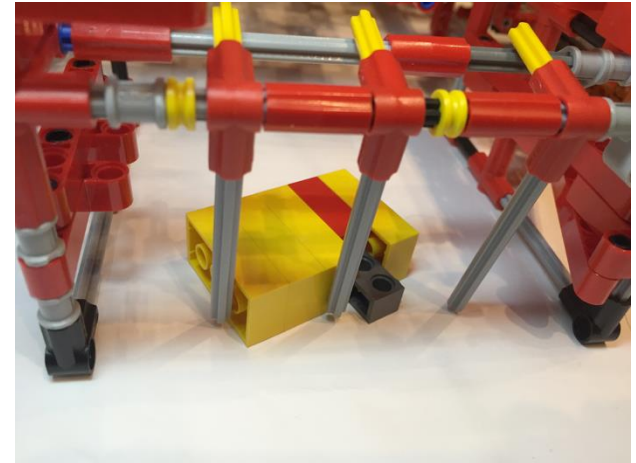
PASSIVE VS. POWERED


- **Passive attachments do not require any external power. They typically work based on the movement of the robot or simple uses of gravity.**
 - This lesson covers some simple types of passive attachments
- **Powered attachments need some type of power source. This includes power from motors, pneumatics and other sources.**





ONE-WAY GATE OR CURTAIN


- Passive attachment that lets objects in but not out
- Uses gravity
- Can be modified to any size





2 x  1/2 BUSH - Medium Lilac


4 x  BUSH FOR CROSS AXLE - Flame Yellowish Orange


2 x  CROSS AXLE 5M - Earth Blue


3 x  CROSS AXLE 6M - Bright Red

3 x  CROSS AXLE 8M - Bright Red

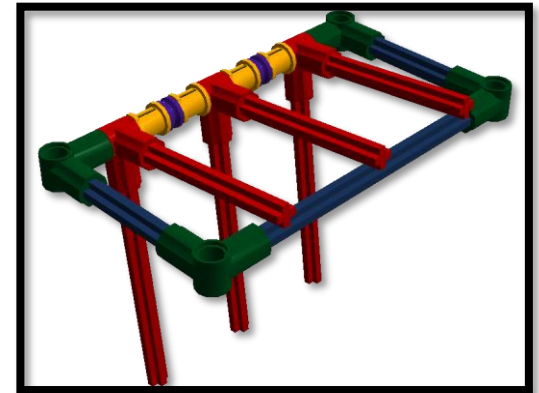
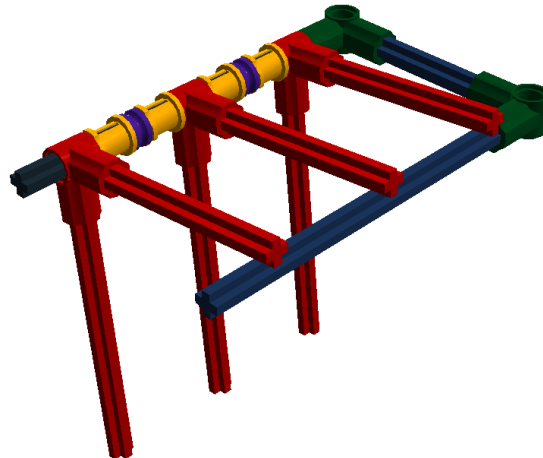
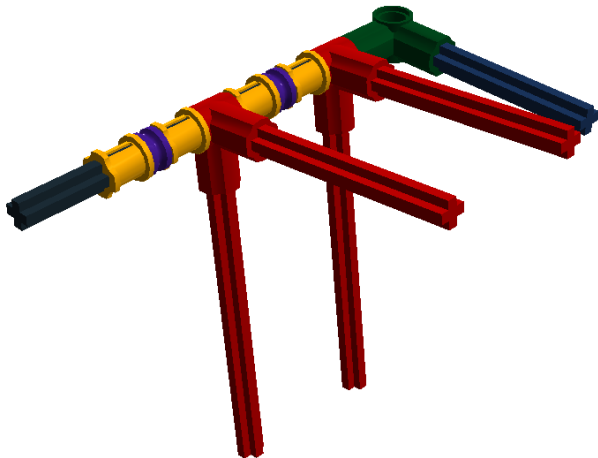
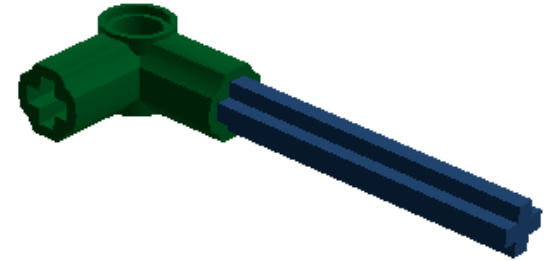
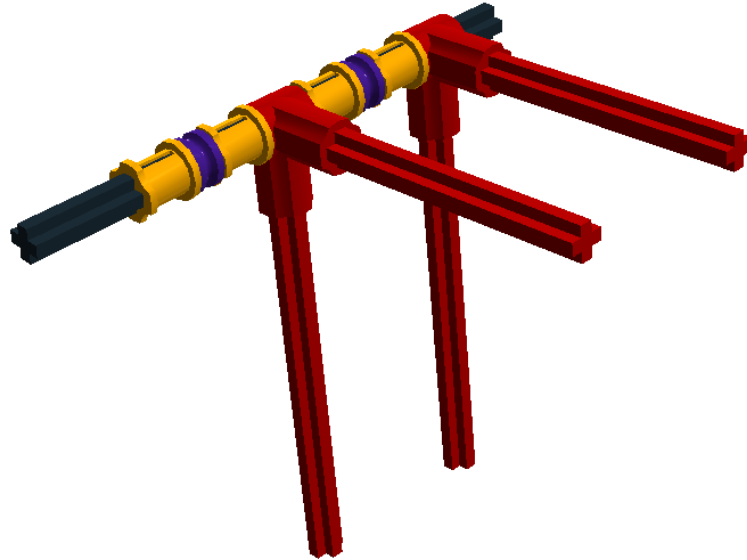
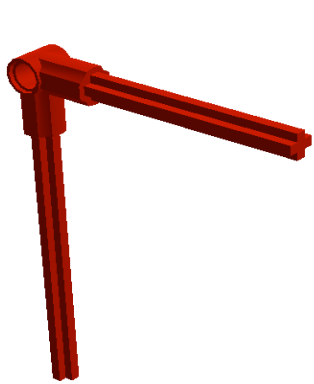
1 x  CROSS AXLE 10M - Black

1 x  CROSS AXLE 10M - Earth Blue

3 x  ANGLE ELEMENT, 90 DEGREES [6] - Bright Red

4 x  ANGLE ELEMENT, 90 DEGREES [6] - Earth Green


TRY BUILDING ONE...





CARABINER


- Passive attachment that lets objects in but not out
- Can be made using gravity or using rubber bands
- Can be modified to any size





1 x  TECHNIC 15M BEAM - Bright Reddish Violet


4 x  TECHNIC ANG. BEAM 3X5 90 DEG. - Bright Blue

2 x  TECHNIC ANG. BEAM 3X5 90 DEG. - Bright Green


2 x  TECHNIC ANGULAR BEAM 3X7 - Bright Red


4 x  1/2 BUSH - Bright Yellow

1 x  CROSS AXLE 3M - Flame Yellowish Orange

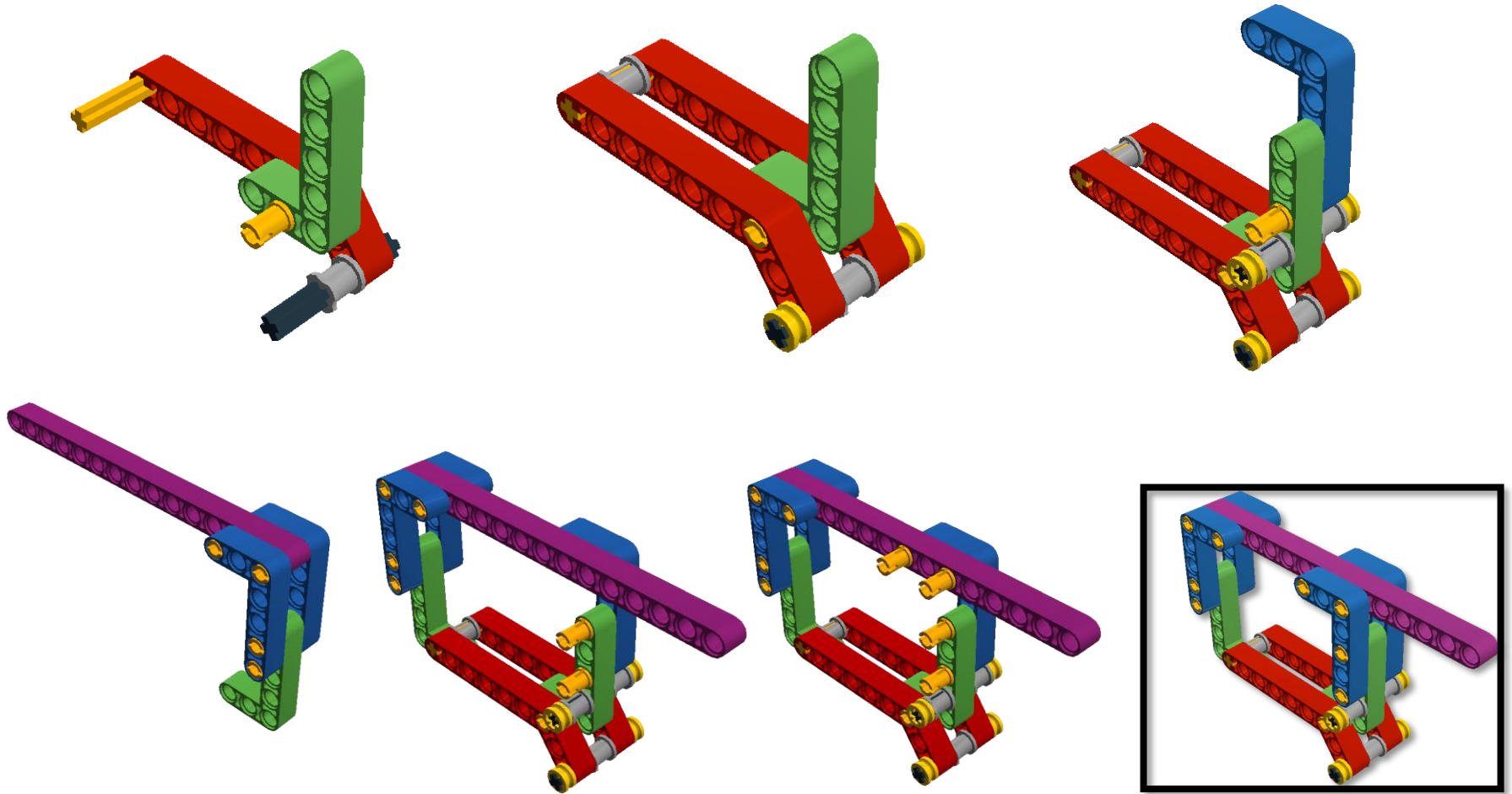
4 x  BUSH FOR CROSS AXLE - Medium Stone Grey

2 x  CROSS AXLE 4M - Black

8 x  CONNECTOR PEG W. FRICTION 3M - Flame Yellowish Orange

1 x  3M CONNECTOR PEG - Flame Yellowish Orange

TRY BUILDING ONE...



Add rubber bands on bushings as needed

CREDITS

- This tutorial was created by Sanjay Seshan and Arvind Seshan
- More lessons at www.ev3lessons.com and www.flltutorials.com



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