

Farm Robotics Challenge Preparation Instructions Self-Guided Tractor

Course Preparation Materials:

- **24'' x 36'' flat area**
- **3 obstacles made from white Lego® pieces**
- **White butcher paper (if using the line reader capabilities)**
- **Wide permanent marker (if using the line reader capabilities)**
- **Flashlight (if using follow the follow the torch capabilities)**

Course Preparation Instructions:

- **Find a flat area (floor or table) to represent a farm field. Place 3 white Lego® obstacles onto the farm field. If using the line reader capabilities, place white butcher paper onto the farm field and draw a path for the robot to follow with a wide permanent marker.**

Possible Design Options:

- **Edison robot without modifications**
- **Edison robot with Legos added to simulate a fertilizer spreader attachment**

Possible Challenge Solutions:

- **Program a path through the farm field and use the obstacle detection commands.**
- **Program a path through the farm field using the line reader and obstacle detection commands.**
- **Program a path through the farm field using the follow a torch and obstacle detection commands.**

**Farm Robotics Challenge
Preparation Instructions
Moving Hay Bales**

Course Preparation Materials:

- 24'' x 36'' flat area
- 4 hay bales made from Lego® pieces with sandpaper attached to the bottom with hot glue (the sandpaper allows the EdDigger bucket to pick up the Lego®)
- Barn outline with a 6'' opening made from Lego® pieces

Course Preparation Instructions:

- Find a flat area (floor or table) to represent a farm field. Create a barn outline with Legos®. Leave a 6'' opening in the barn outline to allow the robot to enter the barn. Place 4 Lego® hay bales onto the farm field.

Possible Design Options:

- EdDigger

Possible Challenge Solutions:

- Using the EdDigger, program a path to pick up a hay bale in the farm field and carry it into the barn area.