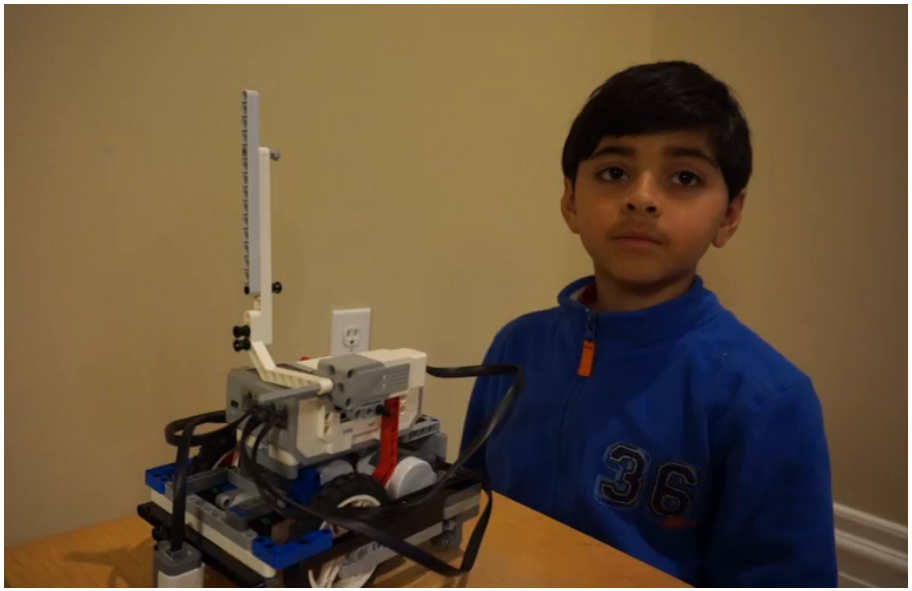
STALL DETECTION

By Droids Robotics and Hoosier Girlz

ADVANCED PROGRAMMING LESSON

What is an Stall Detection and Why use it?

- Stall detection is a program that stops your motor when the motor gets stuck
- When your motor gets stuck, you usually have to grab your robot and get a touch penalty
- When you use stall detection techniques, your robot will move on to the next block



Click on Video to learn about Stall Detection

Move Degrees vs. Move Seconds

- In our lesson on Move Blocks (Intermediate tab), we said that if you use Move Degrees, your motor may get stuck
- We told you that Move Seconds helps avoid stalls, but is not as accurate
- Are these the only choices?
- How can you use Move Degrees and prevent stalls?
- We show you how in this lesson

Requirements

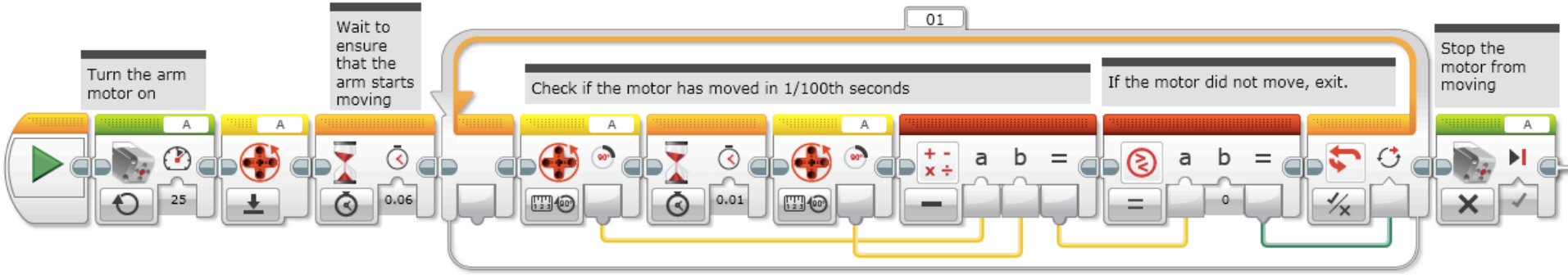
- In this lesson, you will need an arm connected to a motor
- We have set our code to use a medium motor connected to motor A – this can be changed to suit your team's needs
- Follow along using the EV3 Code provided. Start with Step 1

Step 1: Move Until Stall

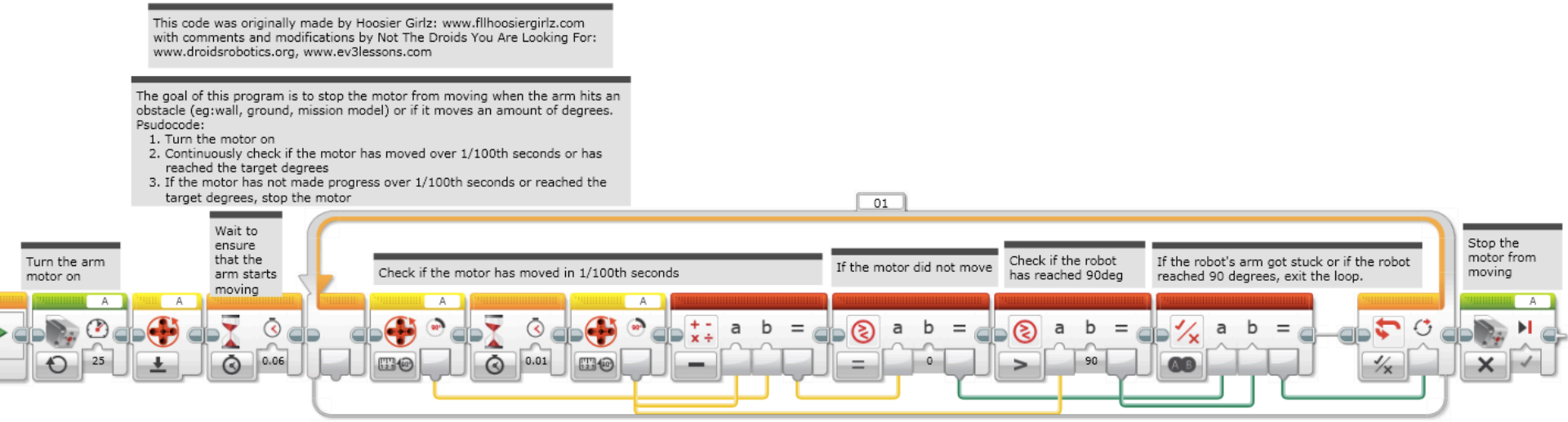
This code was originally made by Hoosier Girlz: www.fllhoosiergirlz.com with comments and modifications by Not The Droids You Are Looking For: www.droidsrobotics.org, www.ev3lessons.com

The goal of Step 1 is to stop the motor from moving when the arm hits an obstacle. (eg:wall, ground, mission model)
Psudocode:

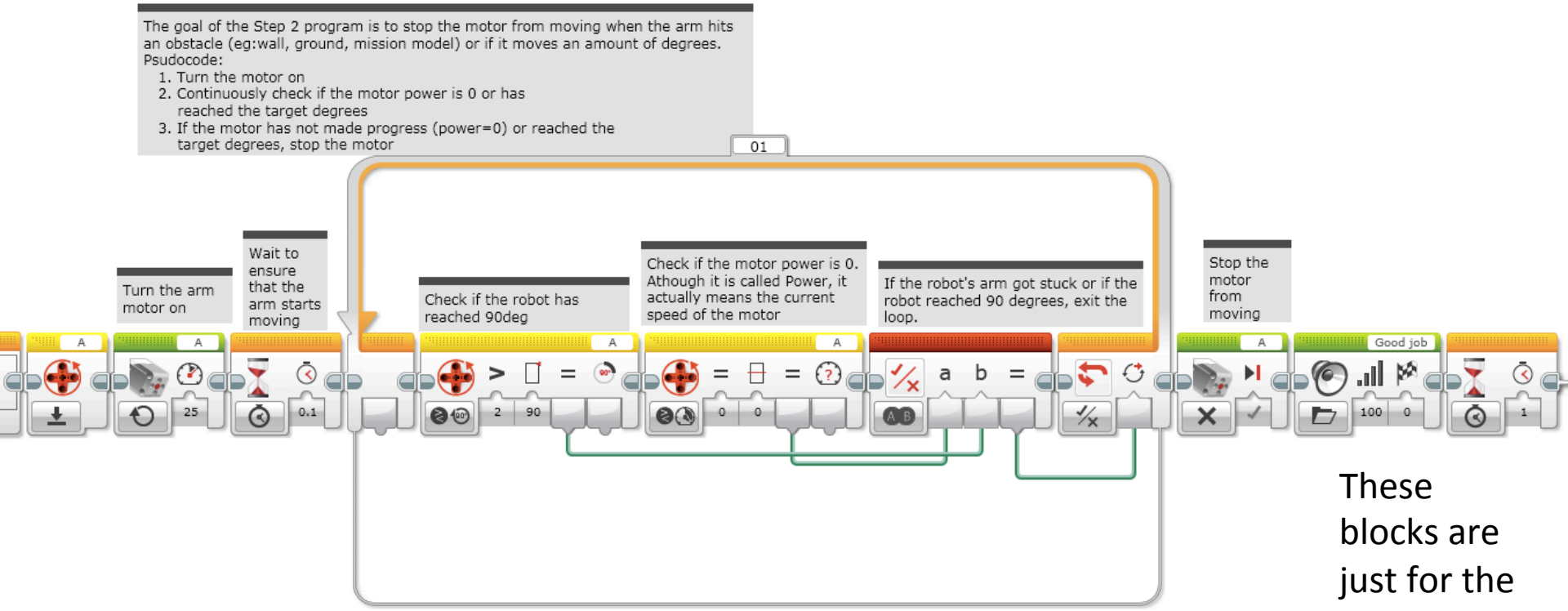
1. Turn the motor on
2. Continuously check if the motor has moved over 1/100th seconds
3. If the motor has not made progress over 1/100th seconds, stop the motor



Step 2a: Move Degrees + Stall Detection



Step 2b: Alternate Move Degrees + Stall Detection



These blocks are just for the video

Credits

- This lesson was created by Sanjay and Arvind Seshan from Droids Robotics. The Code was created by both Hoosier Girlz and Droids Robotics.
  - Step 1 and 2a by www.fllhoosiergirlz.com
  - Step 2a and 2b by www.droidsrobotics.org
- Please give credit to the teams who authored the code.
- More lessons at www.ev3lessons.com