

EV3D4



Building the robot

EV3D4 is a fan robot designed by Vassilis Chryssanthakopoulos from Greece. It is built out of the standard LEGO Mindstorms set. I have made no adjustments to the robot itself.

This is me building EV3D4; I found the instructions online. It is a pretty simple robot.



Programming the robot

This is where the real project starts. Originally I thought I would download the original programs, then create my own. But, I could not get the original programs, so my project became recreating the programs.

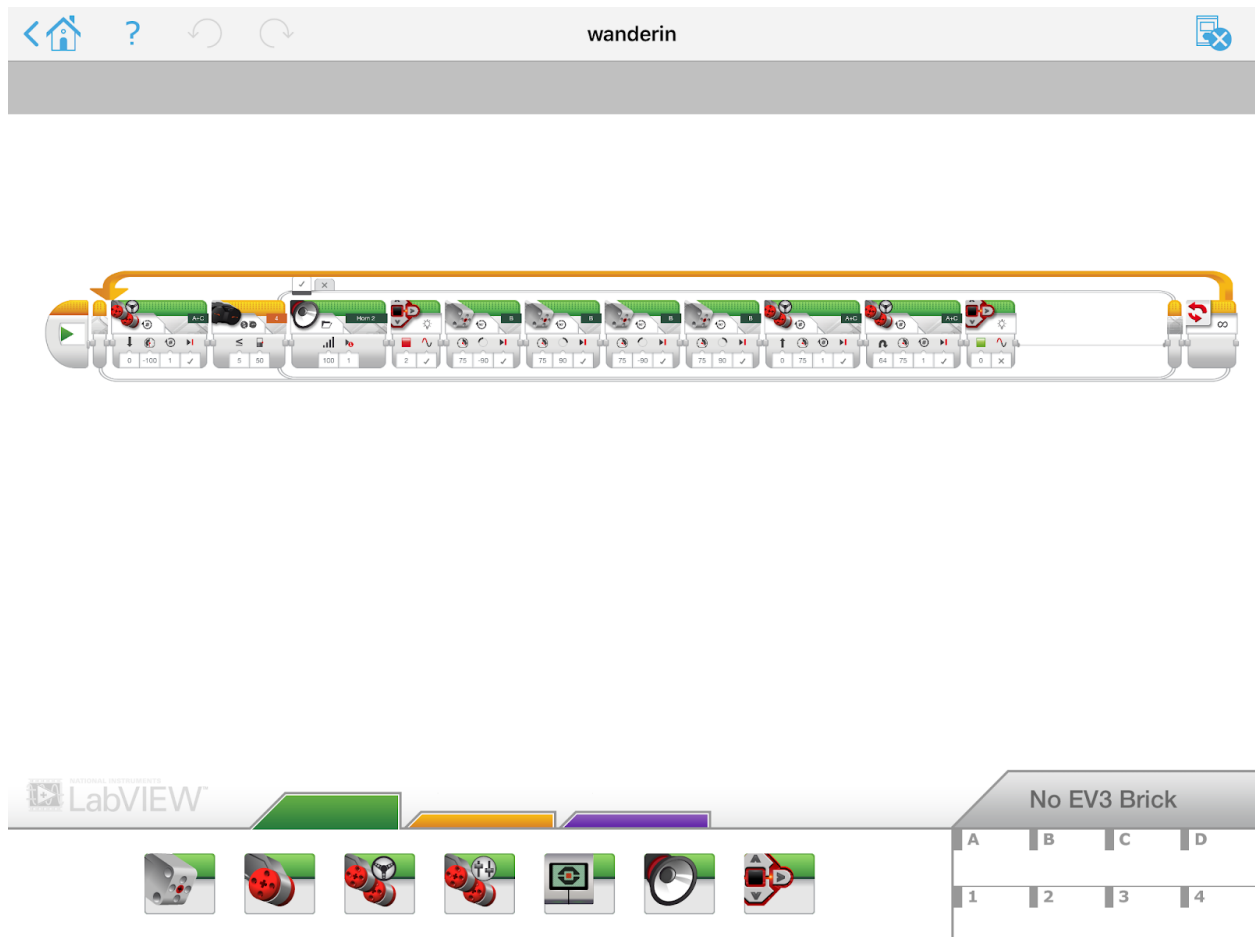
When starting coding I quickly realized that the standard move forward block would not work because of the motors positioning. The motors are backward because of the instructions. I kept puzzling over how to make the robot move forward when I had an idea. I searched for pictures of the original programming but those did not help. So I found a website that explains the blocks. It turned out to be very simple. I just had to make the wheel power go negative so it turns backward.

Programs

I made five programs for EV3D4:

Wandering, in this program the robot goes around and if it sees something it shakes its head and backs up. Click here to watch a video of the program: <https://www.youtube.com/watch?v=7-mJySMDjt8>

Here is the code:



The screenshot shows the LabVIEW software interface. At the top, a toolbar contains navigation icons (home, question mark, refresh, undo) and the program name 'wanderin'. Below the toolbar is a large, horizontal block diagram of the program, which is a sequence of various control and data handling blocks. At the bottom of the interface, there is a terminal window titled 'No EV3 Brick'. The terminal window has a header with columns labeled A, B, C, and D, and a row of numbers 1, 2, 3, and 4 below it.

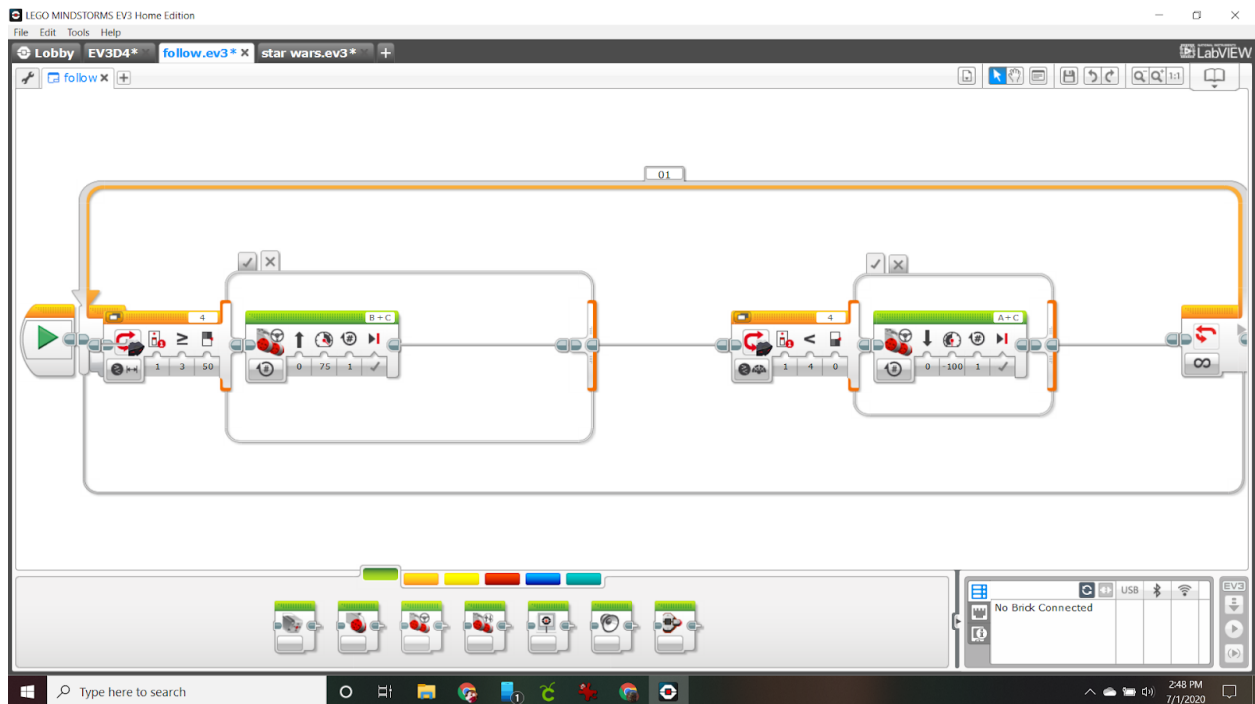
Control, in this program you can control the robot with the LEGO Mindstorms controller. Click here to watch a video of it: https://www.youtube.com/watch?v=106_06flLXU

Here is the code:



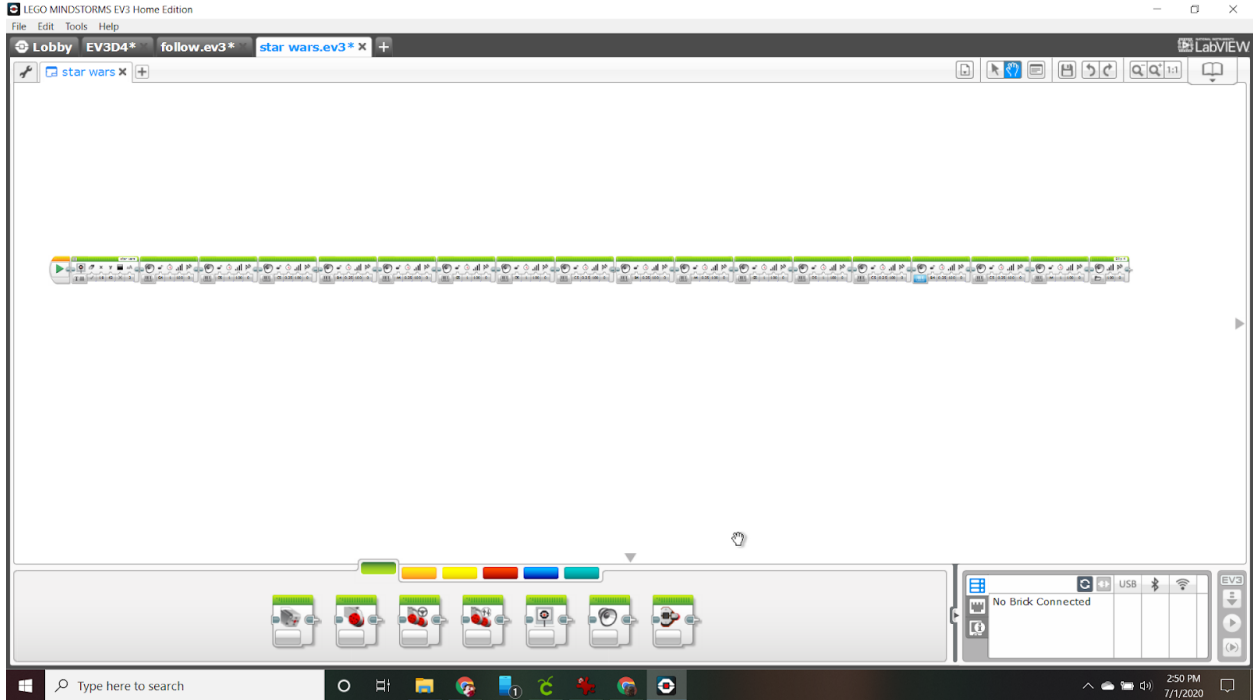
Follow, in this program, the robot will follow the IR beacon on the remote using the IR sensor. Click here to watch a video: <https://www.youtube.com/watch?v=QJTIfBXuEMA>

Here is the code:



Hedwig's Theme/Star Wars, in these programs they play the songs and have the song name on the screen. Click here to listen: <https://www.youtube.com/watch?v=OR8ljzdi6tY>

Here is the code: Star Wars



Hedwig's Theme

Navigation bar with icons for home, help, undo, and redo, the text "Hedwigs theme", and a close icon.



LabVIEW interface showing a terminal window with the text "No EV3 Brick" and a table with columns A, B, C, D and rows 1, 2, 3, 4.

No EV3 Brick			
A	B	C	D
1	2	3	4

Conclusions

Overall, I think that this is a better project than last year because I did not expect much, so that instead of a project that had things missing it had more than planned. Also, I think that it helped me understand my limits and to set goals I can reach.