

Cosmo

GROUP 10

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Software developer shortage transcends international boundaries

Tech's ultimate success: Software developers are more valuable to companies than money



By Fred O'Connor
Reporter, IDG

- A majority of companies say lack of access to software developers is a bigger threat to success than lack of access to capital.
- Still, companies are misusing their most important resource, with too many developers tied up in projects designed to cost \$300 billion a year.
- Correctly deployed, the expertise of software developers could add \$1.2 trillion to global GDP over the next decade.

TECHNOLOGY NEWS DECEMBER 5,

COMMENTARY

Will Gaybrick, Stripe CFO and a member of the Board of Directors
Published 3:12 PM ET Thu, 6 Sept 2018 | Updated 3:19 PM ET

Finnish game coding schools

ARAB ISRAELI CONFLICT ISR

ISRAELI TECH SECTOR SHORTAGE OF 15,000

The current lack of talent, according to a survey of tech sector employees' market in the tech sector

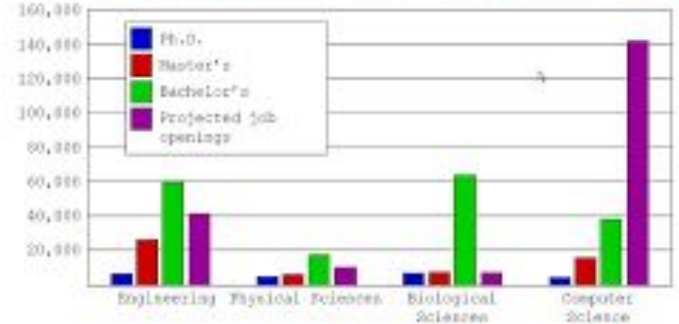
BY EYTAN HALON / DECEMBER 16, 2018 0

4 minute read.

Oil Boil as

THE JERUSALEM POST

Degree Production vs. Job Openings



Sources: <http://es.sciencedirect.com/science/article/pii/S0950080408000000>
Adapted from a presentation by Julia Sargent, Senior Policy Analyst, Department of Economics, at the CRA Computing Research Summit, February 20, 2004. Original sources listed as National Science Foundation/Division of Science Resources Statistics; Argonne Data from Department of Education/National Center for Education Statistics - Integrated Postsecondary Education Data System; Completion Survey; and NSF/IBS, Survey of Earned Doctorates; and Projected Annual Average Job Openings derived from Department of Economics Policy of Technology Policy analysis of Bureau of Labor Statistics 2002-2012 projections. See <http://www.cra.computerresearchsummit.org/abstracts/0402020401.pdf>

Talent Shortage in the Nordics: Finland, Sweden, and Denmark Are Coming Short of Software Developers



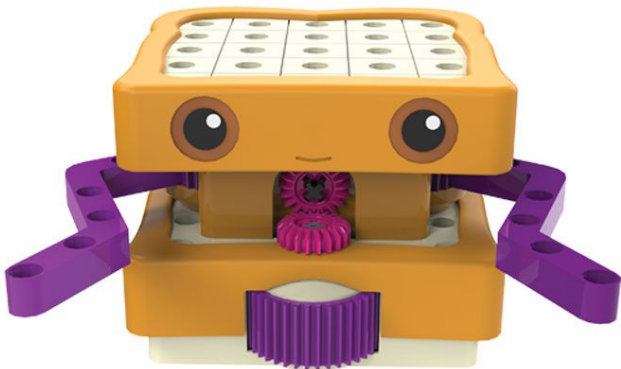


Concept

- A robot who helps to learn to program
- Focused on children (9-12)
- Designed for everyone

Lack in current market

- Only one-person games
- Either too hard or very childish
- Oriented on parents with children



CC





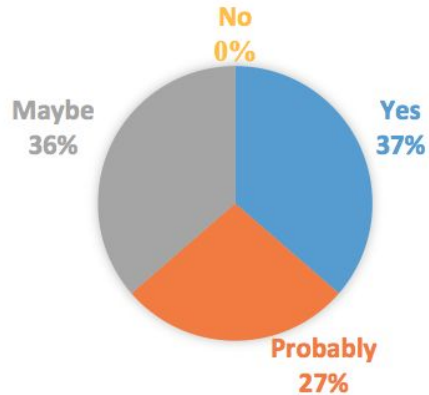
Process

- Questionnaire: what does our target group want?
- Design: how can we implement the needs of our target group?
- Prototype

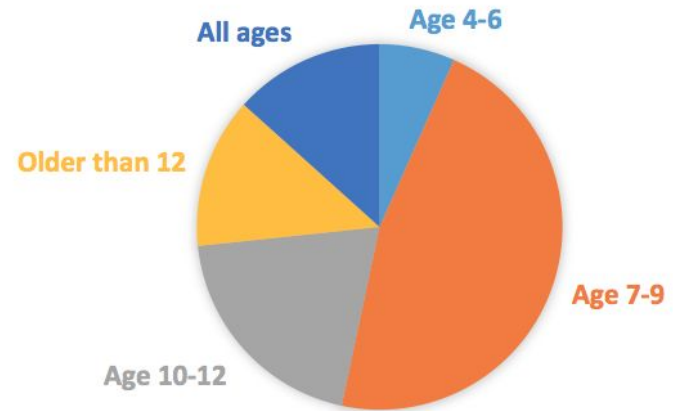


Questionnaire - Suitability

DO YOU THINK THIS CONCEPT WOULD HELP CHILDREN TO LEARN THE WAY OF THINKING USED IN COMPUTER PROGRAMMING?



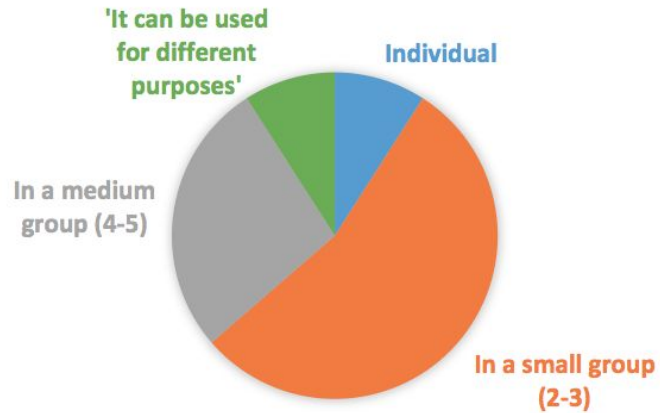
WHAT AGE DO YOU THINK THIS CONCEPT FITS BEST?



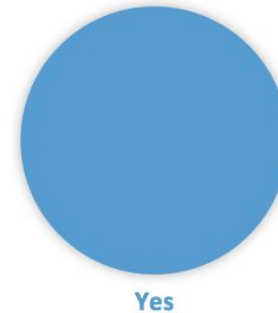


Questionnaire - Usage

DO YOU THINK THIS GAME SHOULD BE PLAYED INDIVIDUAL OR ON A GROUP?



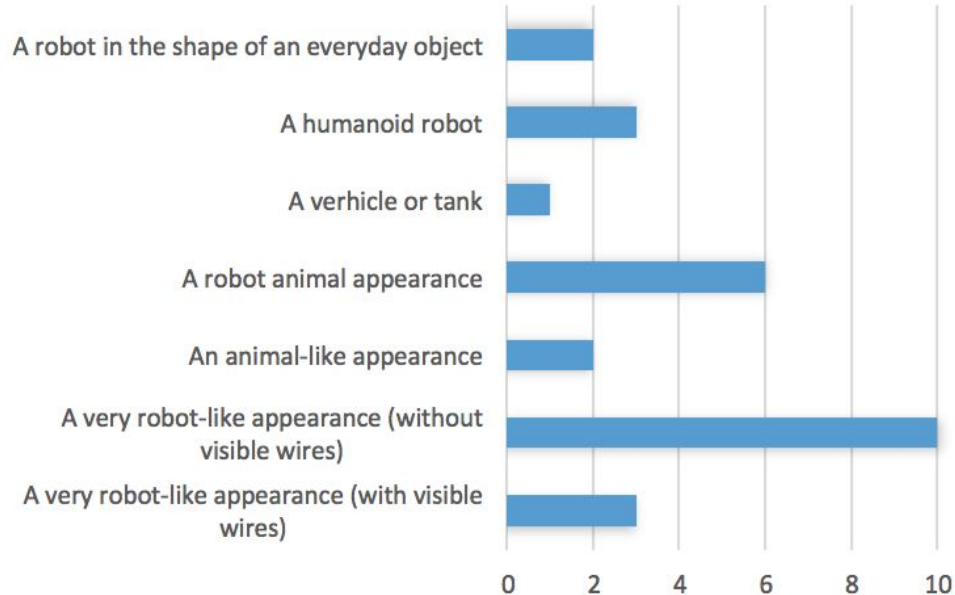
DO YOU THINK CHILDREN WILL ENJOY BUILDING THEIR OWN GAME BOARD (WITH PUZZLE PIECES)?





Questionnaire - Appearance

WHAT KIND OF APPEARANCE DO YOU THINK CHILDREN LIKE BEST?





So what is the need?

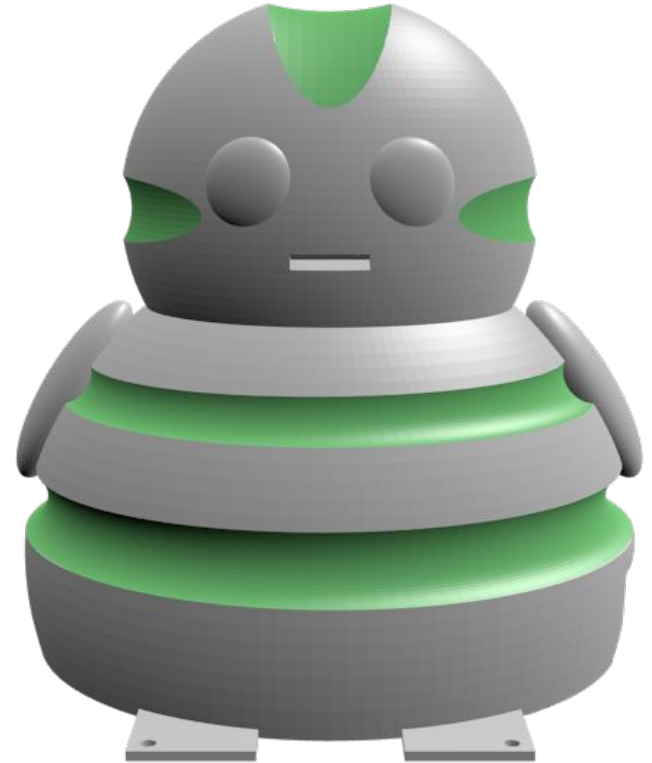
- Classroom oriented
- Small groups
- Focused age 7-9 (but child dependent)
- Design own puzzle board



Robot design

Based on the questionnaires:

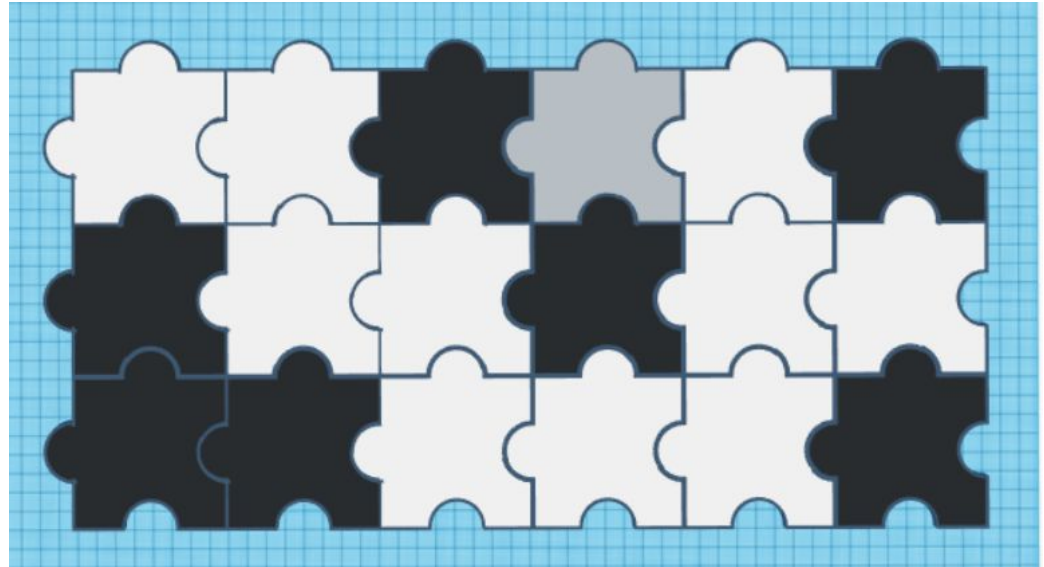
- Robot should look like a robot
- Robot should have eyes
- No visible wires





Game board

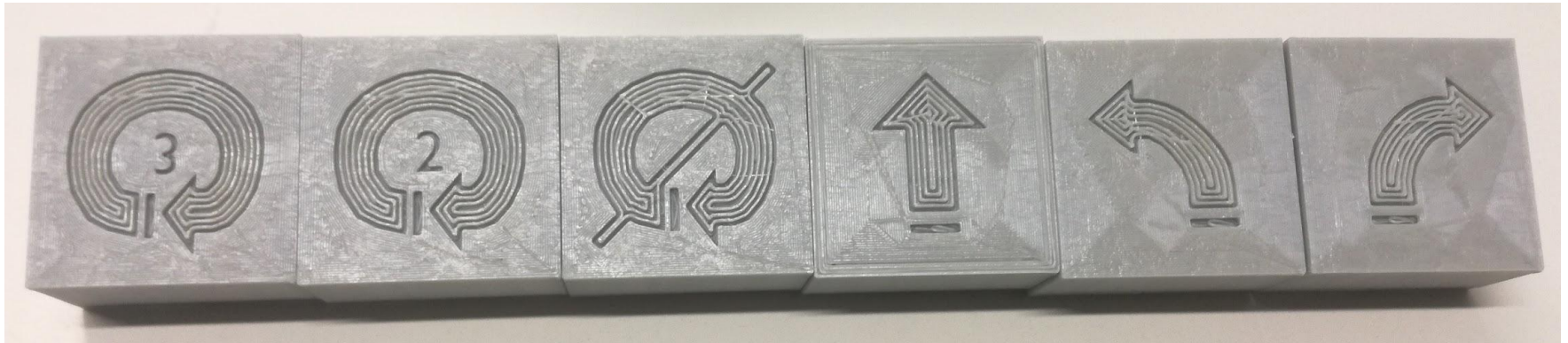
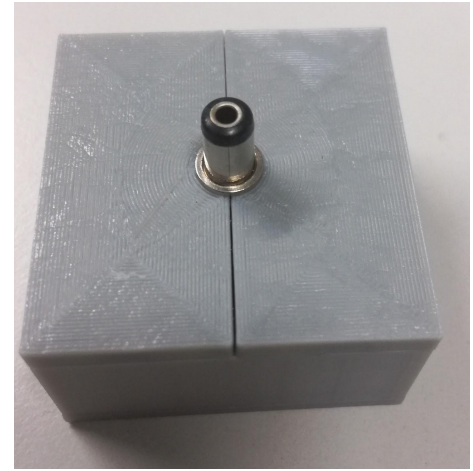
- Puzzle pieces
- Every piece looks the same
- Children can design own board
- Black = pit
- White = path
- Grey = goal





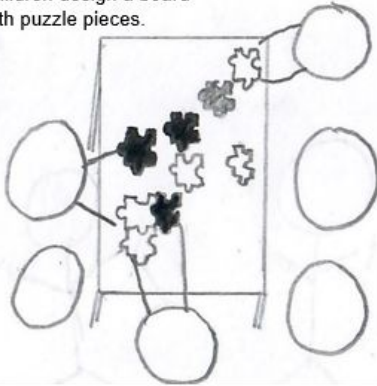
Command blocks

- 6 different commands
- Loop 3 - Loop 2 - Loop End - Forward - Turn Left - Turn Right

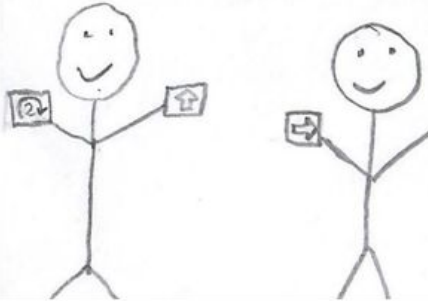


Storyboard

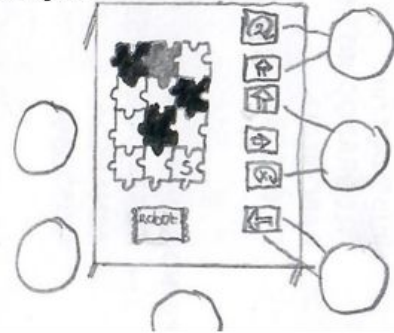
Children design a board with puzzle pieces.



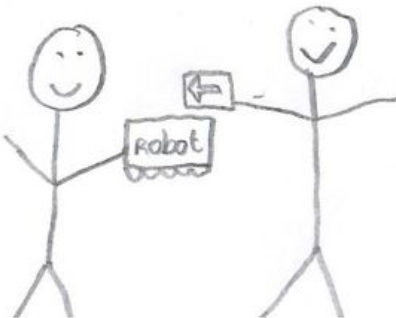
They look what type of command blocks they have.



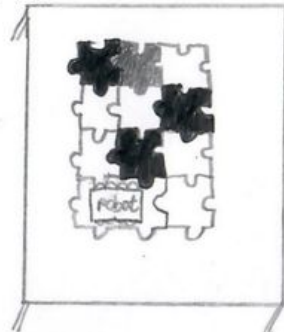
Based on the puzzle board they designed, they design a path using the command blocks to reach the goal.



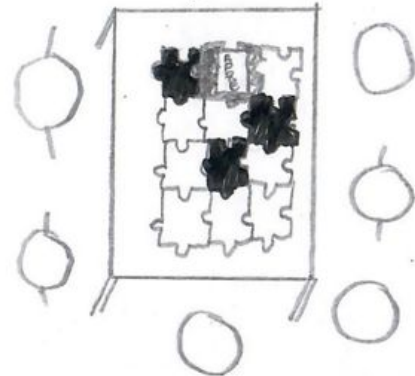
The robot reads the command blocks.



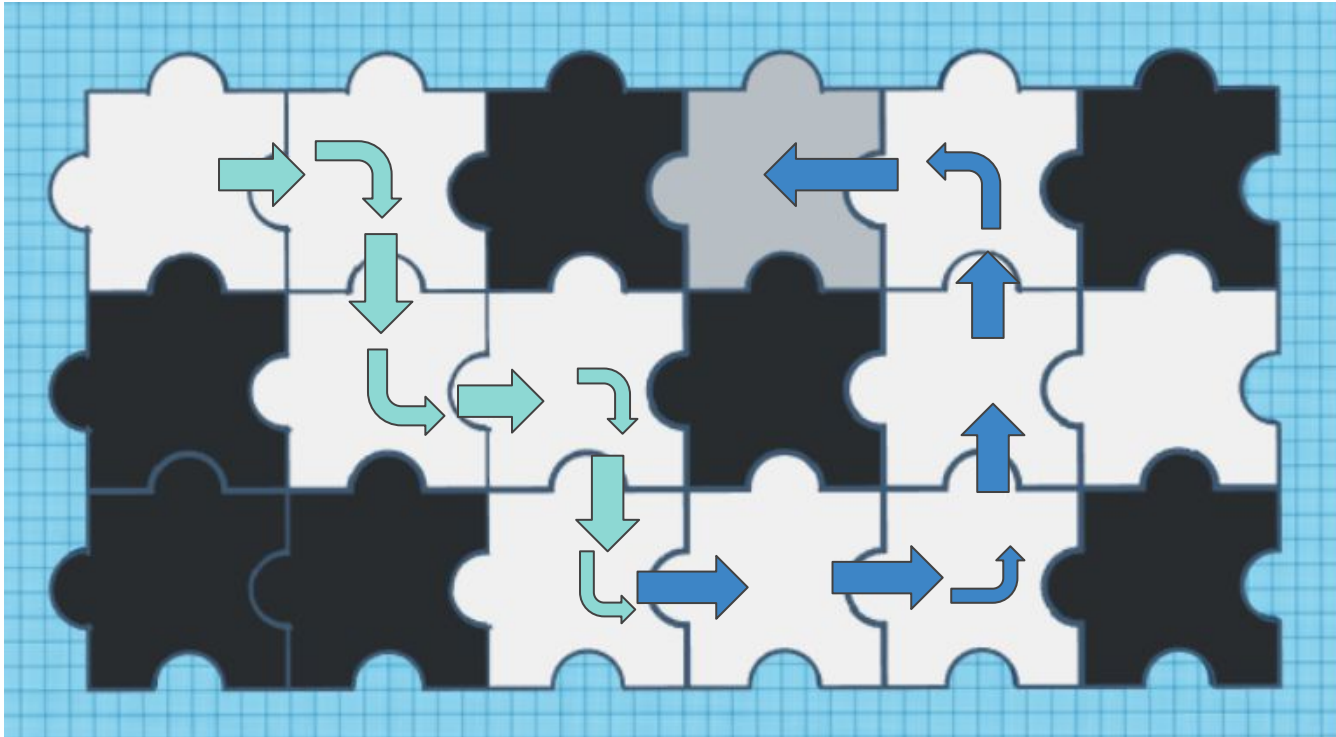
The robot drives a route based on the input of the command blocks. It must avoid the black pits and reach the grey goal.



The robot reached the goal!



Game board



Shortest:
Loop2 {
Forward
TurnRight
Forward
TurnLeft
} LoopEnd

Loop3 {
Forward
Forward
TurnLeft
} LoopEnd

15 vs 9
commands





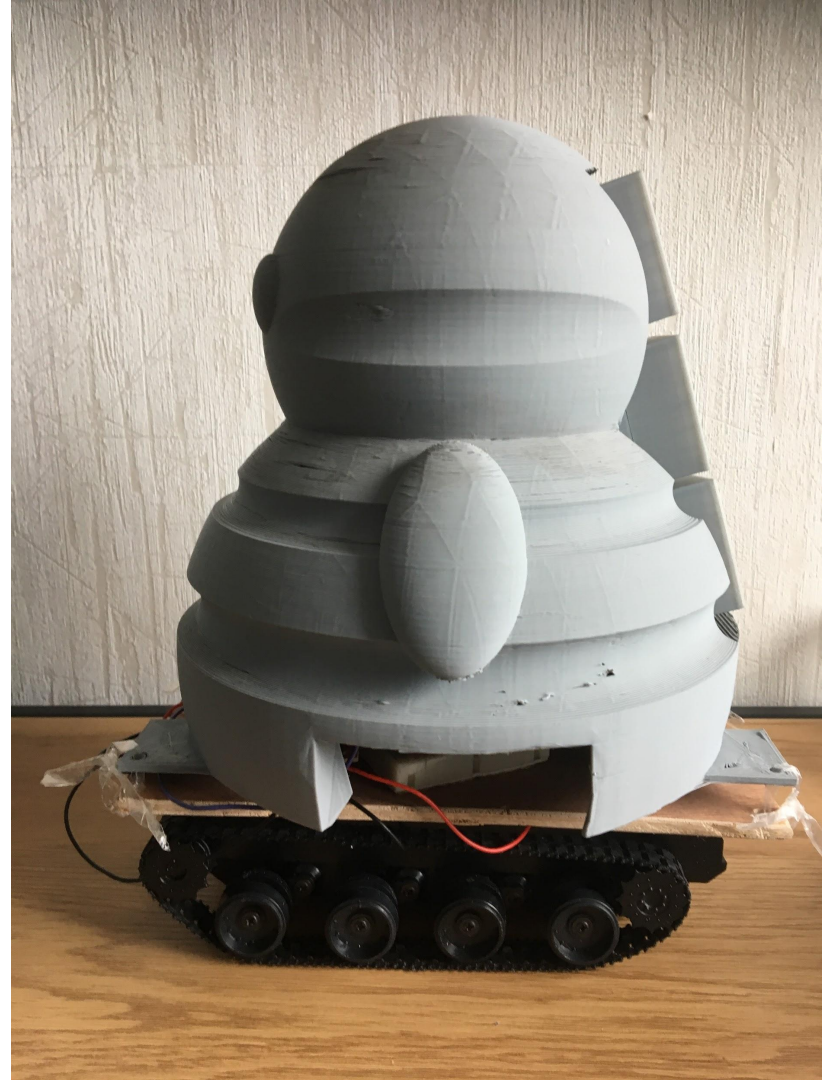
User Manual

- Different game types: alone, cooperation, competitive
- Different difficulty levels
- One robot or multiple robots



Prototype

- Chassis
- Arduino
- Breadboard
- Motor Control
- Light sensor
- Buzzer
- Command block inputs





Future improvements

- Tile positioning
- Hexagonal board
- Multiple robots
- Shooting ability
- Better hardware
- Different input methods
- Use robot at other courses (e.g. math) as well



Questions?