WRO
WORLD ROBOT OLYMPIAD
THAILAND 2018
FOOD MATTERS
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The mission this year is to build a robot that supports the way we grow, share and consume food. Your project should focus around at least one of the following aspects of the Goal 2 of sustainable development:

- Promote sustainable agriculture
- Improve nutrition
- Achieve food security
- End hunger

This way, each robot will contribute to a goal of the world-wide UN sustainability goals. More information about this specific goal you find at:

http://www.un.org/sustainabledevelopment/hunger/
ROBOTS FOR FOOD PRODUCTION

TEAM WeDo Masters
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ROBOTS FOR FOOD PRODUCTION

WRO 2018 – Open Category
Find Inspirational Machinery/Robots:

Find several inspirational pictures of machinery/robots that may be used to help increase food growth.
Explain Inspirational Machinery/Robots:

Choose at least four different machinery/robots from the found inspirational pictures and figure out how the machinery/robots work and how they may help increase food growth.
Construct Machinery/Robots

Construct machinery/robots inspired by one or more of the found inspirational pictures.
FUTURE FARMS
small and smart

SURVEY DRONES
Aerial drones survey the fields, mapping weeds, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increasing Wheat yields by 2-5%.

FLEET OF AGRIBOTS
A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.

FARMING DATA
The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

TEXTING COWS
Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS
GPS controlled steering and optimised route planning reduces soil erosion, saving fuel costs by 10%.
Roughly 1/3 of food produced for human consumption gets lost or wasted 1.3 billion tons per year
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2.1. The controller, motors and sensors used to assemble robots must be from LEGO® MINDSTORMS™ sets (NXT or EV3). The HiTechnic Color Sensor is the only third-party element that can be added to this configuration.

2.2. Only LEGO branded elements may be used to construct the remaining parts of the robot.

2.10. Control software depends on the age group:
   a. For **Elementary and Junior age group** only ROBOLAB®, NXT® and EV3 software is allowed.
   b. In the **Senior age group** it is allowed to run any software and any firmware on NXT / EV3 controllers.

2. Regulations about the robot

2.1. There is no restriction on the balance between LEGO® elements and other materials.
2.2. All robots must be operated by NXT or EV3 controllers and any software.
2.3. Robots may be preassembled and software programs may be pre-made!