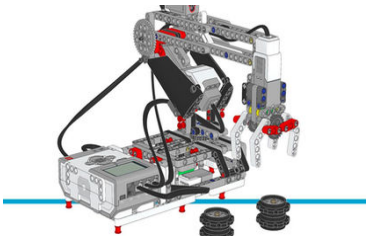
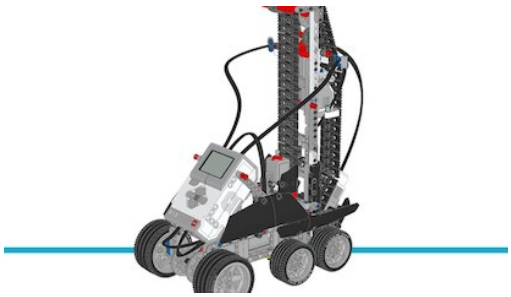
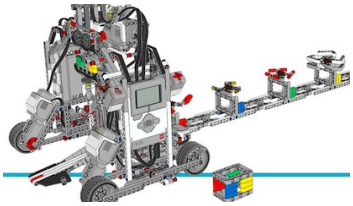


Robotic Arm

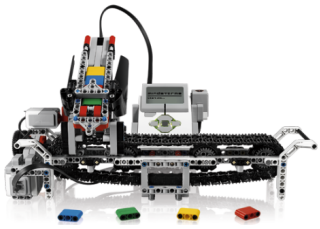
Gyro Boy



Stair Climber



Spinner Factory



Color Sorter

Overview: This program teaches techniques to build and program advanced robots with complex tasks using Lego® EV3 Mindstorms. Kids are allowed to team up or work individually as they create robots that can perform a variety of complex tasks.

Ages: 10+ (School Grade 5 or higher)

HADOOP EXPRESS

Pre-Requisite: Students who have completed Wizard-2 or have knowledge and experience on the following topics of EV3 Mindstorms: Multitasking, Loop, Switch, Data Wires, Variables, Arrays, Mathematics - Basic and Advanced. All of these topics are covered by Hadoop Express in the Wizard-2 course

Topics:

Students learn complex topics, including extended program loops, switches, multiple switches, arrays and data wires. They also learn more about data logging, graph programming and dataset calculation.

Student learn to:

- Create advanced robots with multiple sensors and motors

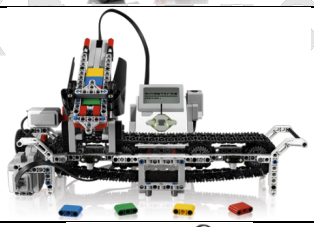
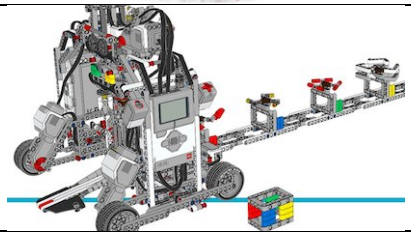
- Understand complex program flows and create pseudo-codes
- Insert their own pages
- Add images and videos of their robot in action
- Share their unique project with other students

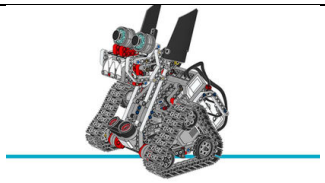
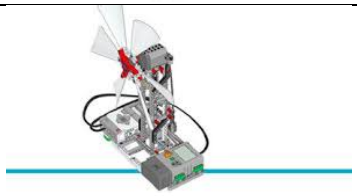
Advanced Concepts: Data Logging, My Blocks, Image Editors, Sound Editor, Dataset Calculation, Graph Programming, Complex Messaging and Multi-tasking

Students learn about collecting and analyzing data logged by the sensors. Data Logging, Data Logging Overview, Oscilloscope, Live Data Logging, Remote Data Logging, Brick Data Logging, Autonomous Data Logging, Dataset Calculation, Graph Programming.

WIZ-X ROBOTS

Students get a chance to pick several projects from various examples available from Lego® EV3 Mindstorms. Some of them are listed below though students are allowed to pick other models from Mindstorms.

GYRO BOY: It is a self-balancing robot that takes advantage of all EV3 motors and sensors as well as advanced programming to control its behavior.	
COLOUR SORTER: This robot scan and load colored objects and let the color sorter place them in the right area. The color sorter uses the Touch sensor, Color sensor and motors to control its movements.	
ROBOT ARM H25: This robot picks up objects in specific locations and deliver them to another. The Robot arm uses the Color sensor and Touch sensor to control its movements.	
SPINNER TOP FACTORY: This robot brings design concepts to life. It is a working model of a production line and program the steps need to construct and launch a spinning top.	

ZNap: This is a reactive robot which drives around in a small pattern. It hisses if you come close to it and will try to bite you if you get closer.	
Elephant: The elephant robot can make elephant sounds as it lifts objects with its trunk.	
Science Models: Students expand their learning by building science model such as space challenge (challenges related to space exploration) and flower (opens and closes petals on sensing light).	

HADOOP EXPRESS