Ed Hall
CIS Instructor
Seward County Community College

Ed.hall@sccc.edu
Timeline

2013 - Volunteered as Robotics Judge at local FIRST LEGO League (FLL) competition

2013-2014 - Designed and submitted course

2015 - First taught with 5 kits and 15 students

2017 - Expecting 21 students

SEWARD COUNTY COMMUNITY COLLEGE
<table>
<thead>
<tr>
<th></th>
<th>EV3</th>
<th>NXT</th>
<th>RCX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release Date</td>
<td>September 2013</td>
<td>July 2006</td>
<td>1998</td>
</tr>
<tr>
<td>Display</td>
<td>178×128 pixel Monochrome LCD</td>
<td>100×64 pixel Monochrome LCD</td>
<td>segmented Monochrome LCD</td>
</tr>
<tr>
<td>Main Processor</td>
<td>TI Sitara AM1808 (ARM926EJ-S core) @300 MHz</td>
<td>Atmel AT91SAM7S256 (ARM7TDMI core) @48 MHz</td>
<td>Hitachi H8/300 @16 MHz</td>
</tr>
<tr>
<td>Main Memory</td>
<td>64 MB RAM 16 MB Flash microSDHC Slot</td>
<td>64 KB RAM 256 KB Flash</td>
<td>32 KB RAM 16 KB ROM</td>
</tr>
<tr>
<td>USB Host Port</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>WiFi</td>
<td>Optional dongle via USB port</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bluetooth</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Connects to Apple devices</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Students learn how to break down complex problems into smaller solvable portions and then come together to apply the solutions.
LEGO® provides a version of National Instruments LabVIEW software that integrates with all of the sensors and motors connected to the EV3.
Students design and build robots to solve given problems. The robots are then programmed to run autonomously.

Robots can also be remote controlled.
Basic instructions are given to build the initial robot. From that point on, students use the kit parts to add functionality.
Each program must be documented. The documentation includes the processes followed to build and program the robot along with correction to any inconsistencies or issues encountered in producing the solutions.
THANK YOU FOR YOUR TIME

Questions

Comments

Suggestions
Ed Hall
CIS Instructor
Seward County Community College

Ed.hall@sccc.edu
References

Slide 04: https://en.wikipedia.org/wiki/Lego_Mindstorms_EV3
Slide 07: http://www.legoengineering.com/alternative-programming-languages/
Slide 07: http://www.ev3dev.org/docs/programming-languages/
Slide 11: https://www.nostarch.com/artofev3programming

SCCC logo converted to LEGO at http://me.brickapic.com/

Course offering at SCCC:
http://syllabi.sccc.edu/original/cs/CS1313-ProgrammingFundamentals.html