

ECE 100 - ITP

Lecture 5

Dr. Alexander J. Flueck
Electrical and Computer Engineering
Illinois Institute of Technology

flueck@iit.edu
<http://www.ece.iit.edu/~flueck/ece100>

1 - Prof. Flueck, ECE - September 17, 2012

Questions?

- ❑ Attendance required for entire lab session, but ...
 - Flu viruses are serious. If you have flu symptoms, do NOT come to lab. Instead, see a medical professional immediately and be sure to bring a record of your medical visit to me.
- ❑ Lab Assignments due at 1:50 pm
 - Late assignments will receive zero credit.
- ❑ All written work must be your own! Zero credit for any report with any duplicated material anywhere. Referred to ECE Department.
- ❑ Investigation/Research – summary of previous work; cover critical topics
 - Three topics: Lego robot, HandyBoard, Interactive C
- ❑ How to prevent a costly \$300 repair bill
 - Be careful! Be patient.
 - Don't let motors stall! Don't let motor gears grind!
- ❑ HandyBoard/Interactive C/motors/sensors/LEGO

2 - Prof. Flueck, ECE - September 17, 2012

Round 0 Runoff Teams

Team	Members	Section	History
1	Max Beehler, Justiniano Catalan, Xingcai Wu	02	10/11, 73 sec
2	Aoran Liu, Karan Mahajan, Christopher Thai	02	3/11, 54 sec
3	Andy Huang, Nathan Kong, Adam Sumner	03	1/11, 69 sec
4	Nash Kaminski, Jezel Mertens Walker, Hongyang Wang	04	8/11, 34 sec

3 - Prof. Flueck, ECE - September 17, 2012

Round 0 Runoff Results

Team	Strategy	History	Pred	Tr1	Tr2
1	Metasens; bump count 3; 8:40 ratio; narrow bumper; 1 axle, 2x tire	10/11, 73 sec	3	6/11	83 s
2	Right wall follower with right touch sensor; 24:40	3/11, 54 sec	2	38 s	24 s
3	Always turns left: 90 or 180 deg; 24:40; narrower bumper	1/11, 69 sec	4	5/11	/11
4	Metasens; short turns; only 4 random actions; turns are recorded; 24:24; dual axle; wider bumper	8/11, 34 sec	1	2/11	6/11

4 - Prof. Flueck, ECE - September 17, 2012

Interactive C Questions

- ☐ Logical “AND”
 - `this && that`
 - `if (digital(10) && digital(11))`
- ☐ Logical “OR”
 - `this || that`
 - `if (digital(10) || digital(11))`
- ☐ Function input(s)
 - Note input argument type(s)
 - Appendix E
- ☐ Function output
 - Note output argument type
 - If a function has type “void”, then what does it return?
 - ❖ A function of type “void” does not return a value, so the compiler will give an error if you try to access a return value!

5 - Prof. Flueck, ECE - September 17, 2012

Pre-Lab 4 Assignment (due week of Sep 24) - Light Sensing Robot Proposal

- ☐ You need to submit a **proposal** at the beginning of your lab session.
 - Assume that you are leading an R&D group for a company that wants to develop autonomous robots for hazardous rescue missions.
 - The proposal should present a clear and detailed strategy for creating a light sensing robot that will win the Round 1 competition.
 - You need to formulate the problem; do some detailed investigation; generate some potential designs; layout a comprehensive plan; persuade “the decider” that you deserve the project more than anyone else.
- ☐ Hint: Section 2.4 in the textbook. Take notes for your pre-lab/proposal research/investigation.
- ☐ Present flowcharts and code in your proposal. Note: you cannot use analog ports 0 or 1. The HandyBoard will generate a run-time error if you use the first two analog ports. Only ports 2-6 are available to you.
- ☐ Provide a detailed plan for creating a robot to follow a tape path based on your research and your solution alternatives.
- ☐ Bring electronic copies of your code, along with a pre-lab proposal (SafeAssignment via Blackboard & hard copy due at beginning of lab).

6 - Prof. Flueck, ECE - September 17, 2012