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| Ardu-Bot |
| An educational robot for ECE Adventures |
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| **Ken Tran** |
| **1/27/2016** |

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University of Florida

EEL 4665 – Intelligent Machine Design Lab

Instructors: Dr. A. Antonio Arroyo, Dr. Eric M. Schwartz

TA’s: Andy Gray, Ralph Leyva

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**Abstract**

The goal of this project is to provide a cheap, moderately durable, and intuitive platform for the purpose of introducing beginners to the field of robotics. Ardu-bot will destroy the entrance barrier to the field of robotic. The platform will be a differential drive with a caster wheel in the front. It will be equipped with 3 IR sensors for basic obstacle avoidance. The Arduino Uno will handle all the processing of the robot.

**Integrated System**

The Arduino will handle the sensor processing needed for basic obstacle avoidance and basic behavior. There will be an Arduino library to abstract control of the servos. That way a beginner can easily make the robot move. This will lower the entrance barrier students who are new to robotics.

CdS Cell

3 IR Sensors

**Arduino**

**Uno**

LEDs

Buzzer

LCD Screen

Servo

**Mobile Platform**

The platform will be made out of balsa wood or some other type of wood to minimize manufacturing and materials costs. The drive train for the system will be differential drive with a caster wheel in the front of the robot. This is configuration is the simplest for beginners. Differential drive systems are intuitive and simple but also extremely relevant in the field of robotics. Students won’t be learning how to control some archaic system that will little to no applications outside of class.

**Sensors**

The 3 IR sensors will aid in obstacle avoidance. Potentially, students can use them to implement rudimentary navigation. The CdS cell could also be use so that the robot response the changes in light level of its environment. For, example the robot could activate/deactivate when there’s a certain amount of ambient light in the room.