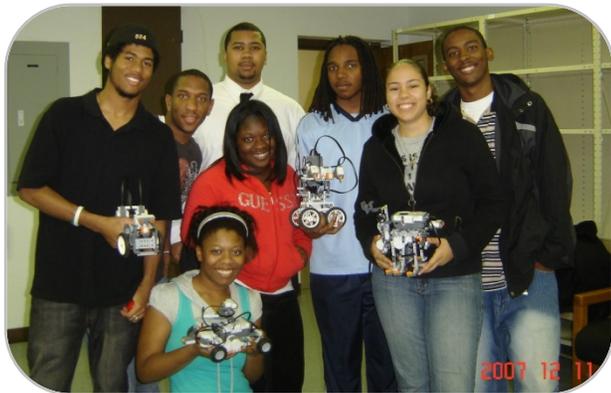


# CSC 291 INTRODUCTION TO ROBOTICS



**FALL 2007** – As part of ARTSI Alliance grant and a continuation of CARE project, Dr. Chutima Boonthum offered an elective course, CSC 291 – Introduction to Robotics. There were eight students enrolled in this course: male left-to-right: Julian Ross, Timothy Brown, James Howell, Omotunwase Olubayo, and Nathaniel Vaughn, and female lower-left-to-right: Amanda Harvey, Velma Teschemaker, and Lianne Evans.

Lego Mindstorms NXT is used with NXT-G software and LeJos firmware (Java language).

**GUARD-BOT** - Lianne and Nathaniel came up with the concept of home security and were able to build the Guard-Bot. The robot was given an Ultrasonic Sensor to sense motion and a set of motors to allow it to move. On either side there were a pair of legs attached and in the rear a third motor was used for an arm that was equipped to throw small objects. Along with the arm the robot was able to sound an alarm in order to deter an intruder. In the rear alongside the throwing arm a Touch Sensor was mounted to be used as an abort button. The Guard-Bot can be used to guard one particular object in a room and can easily be hidden away due to its size. It is completely harmless when the program runs but can be very effective at deterring an intruder from further invasion.



**TONEY-BOT** - Velma and Wase's goal is to build a robot that can play songs on a keyboard. Using the touch sensors and a piece extending from the touch sensor, a piece extending from the touch sensor, and also the motors, Toney has the capability of moving up and down to press each key on the keyboard in a designated rhythm. People, especially children, have a hard time learning how to play the piano. With the help of Toney, they will begin to feel comfortable learning how to play the piano and also being kept company by their newly discovered piano playing robotic friend.

**VEHICAL-BOT** - Amanda and James designed a robot, called Charlie Brown Experience, to make the mundane task of driving a car much easier and safer. Sensors have been attached to detect the presence and direction of the car's track, and on the rear side of the vehicle, to prevent collisions from behind. These additions will prevent the car from traveling an unknown path, eliminate the risk of getting lost, and prevent accidents from occurring. If everyone's vehicle had these types of additions, then riding in a car would be safer than taking any other mode of transportation.



**HELP-BOT** - Julian and Tim began as the WiiTank project, aspiring to use Bluetooth connections to allow simple, intuitive, and effect remote control using the Nintendo Wiimote device. WiiTanks easy to grasp controls aimed to remove the barrier of having to train specialists to operate the robot, therefore increasing the robots overall cost, and consequently decreasing its scope of applications. Due to a time constraint, a simple version is built. HelpBot is aimed at a more casual audience, as an aid in retrieving lost items on the floor. It is programmed to be autonomous and meant to play a passive role in item recovery.