Team: WildCats (Garbage Can)

Project Requirements & Planning

Version 0 - Bare minimum:
Bot will go to locations indicated by command-line input (e.g. the command `garbageBot SCARA` will send the bot to the SCARA workstation as defined by its map
Sending bot away will also be done by terminal input

Version 1 - Target:
Bot will listen to voice commands and figure out which target it should go to (e.g. "OK can, SCARA" will make it go to the SCARA workstation as defined by its map)
Sending bot back to its base will also be done by voice command

Version 2 - Stretch:
- Bot will listen to voice command and figure out where to go based on identifying the person who spoke (directional hearing, object recognition of some sort)
- Bot will know when it's full and let a human know
- Bot will have some actuator that will allow it to open and close the can for humans

	V0	V1	V2	Notes
PERCEPTION				
Fiducial or QR code detection				
Object segmentation/localization				
Object recognition				
Human detection/localization			X	go to person by locating them rather than to map location
Person recognition				
Surface segmentation/localization	X	X	X	recognize obstacles and avoid them
Mapping and localization			X	use in arbitrary offices rather than with a pre-defined map
Speech recognition		X	X	recognize names for map location
Mobile device input				
Browser input				
terminal input	X			to send to specific locations w/o voice recognition
garbage can fullness			x	small camera to detect when garbage is over certain level
ACTUATION				
Navigation to map locations	X	X	X	
Relative motion (odometry)	X	X	X	
Motion patterns/animations				
Random search				
Speech synthesis				
Sound synthesis				
LEDs				
Visualizations				
Asking for human help			X	when stuck, when full
Project specific actuators:			X	opening/closing garbage can

Items needed for modification of the Turtlebot, props/furniture needed for demonstration

Modification:
- small garbage can
- velcro strips for affixing laptop and garbage can

Demo:
- motionlab w/o too many people moving around
- desks in their usual configuration