TEAM TORA
Juan E. Gilbert, Ph.D.
Shaun Gittens, Ph.D.
Cross II, E.V., Hamilton, C., McClendon, J., Soares, C.
Dept. of Computer Science and Software Engineering
Auburn University

Contact Information:
Shaun Gittens
107 Dunstan Hall
Auburn, AL 36849
334.844.7001

CHALLENGE
• Random Walk
  • Pick random direction and go
  • Repeat until bumps into wall, then commence wall following

• Wall Following
  • Follow walls on the right side using the bumper sensors for a "bouncing" effect
  • Randomly stop and commence random walk

FINDING THE FIDUCIAL
To enable a simple IRobot Create, using only bumper and camera sensor data, to seek out marked fiducials in an unfamiliar, yet bounded, terrain. We implemented a simple yet sufficient algorithm via Player/Stage using a combination of random walking and wall following to traverse the terrain while adopting CMU's CMVision blobfinding algorithm to zero in on targets.

• Make full 360° rotation
  • Stop to scan for fiducial every 45 degrees.
  • Proceed towards fiducials if found.

• Blob Finding
  • CMVision (Bruce, Balch, Veloso, 2000)
  • Judge proximity to fiducial by area size of largest blob
  • Center blob on camera view then go straight

SCAN
SCAN (Fiducial?)
FOLLOW PATH
ENGAGE FIDUCIAL

No
Yes

PATH PLANNING

CONCLUSION

REFERENCES

When utilizing a limited amount of sensory information (e.g. bumpers and camera) this method is capable of locating fiducials in an unfamiliar, bounded terrain.
