

# Appendix C — Troubleshooting

## Robot Won't Move

- Check battery
- Check `/cmd_vel` topic
- Ensure motors enabled

## Mapping Looks Wrong

- Move slower
- Avoid sharp turns
- Check LiDAR orientation

## Robot Spins in Place

- AMCL not localized
- Map mismatch
- Place robot in known location

## Navigation Fails

- No clear path
- Costmaps blocked
- Obstacle too close

## AI Autopilot Drifts

- Improve lighting
- Retrain model
- Raise camera angle

## Racing Mode Jitter

- Reduce speed
- Increase turning radius
- Lower obstacle weights