Landing on a Moving Platform

Final Presentation – Team „Weisswurst“

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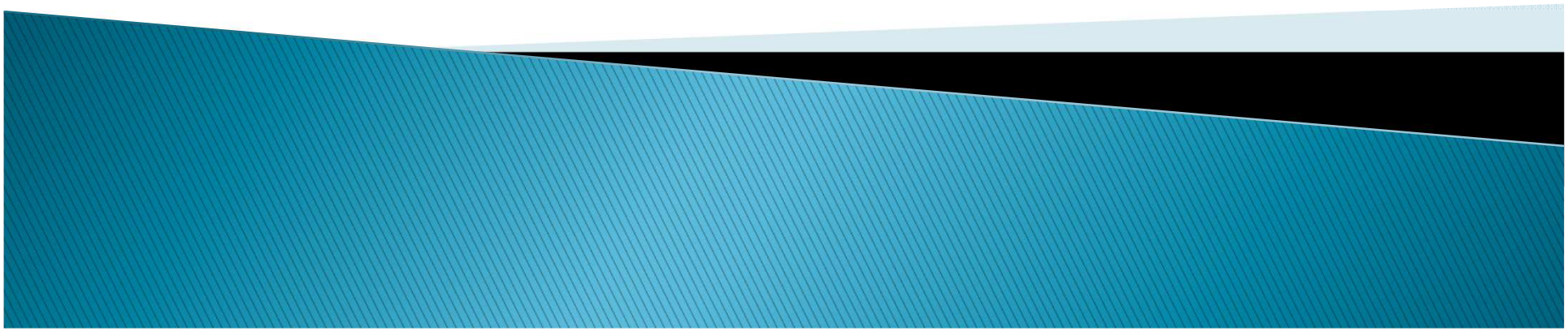
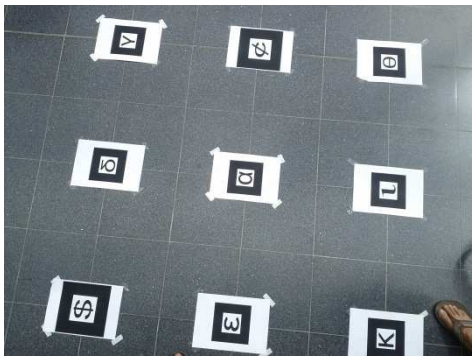


The Approach

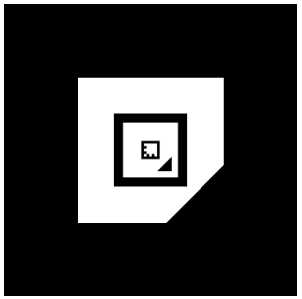
- Separate steps:
  - Search – *deprecated*
  - Predict platform movement
  - Approach, land and detect successful touchdown
- Focus (evolved): *Precision*
- Ideas:
  - two EKF (plus world info) – *deprecated*
  - one EKF (with velocity)



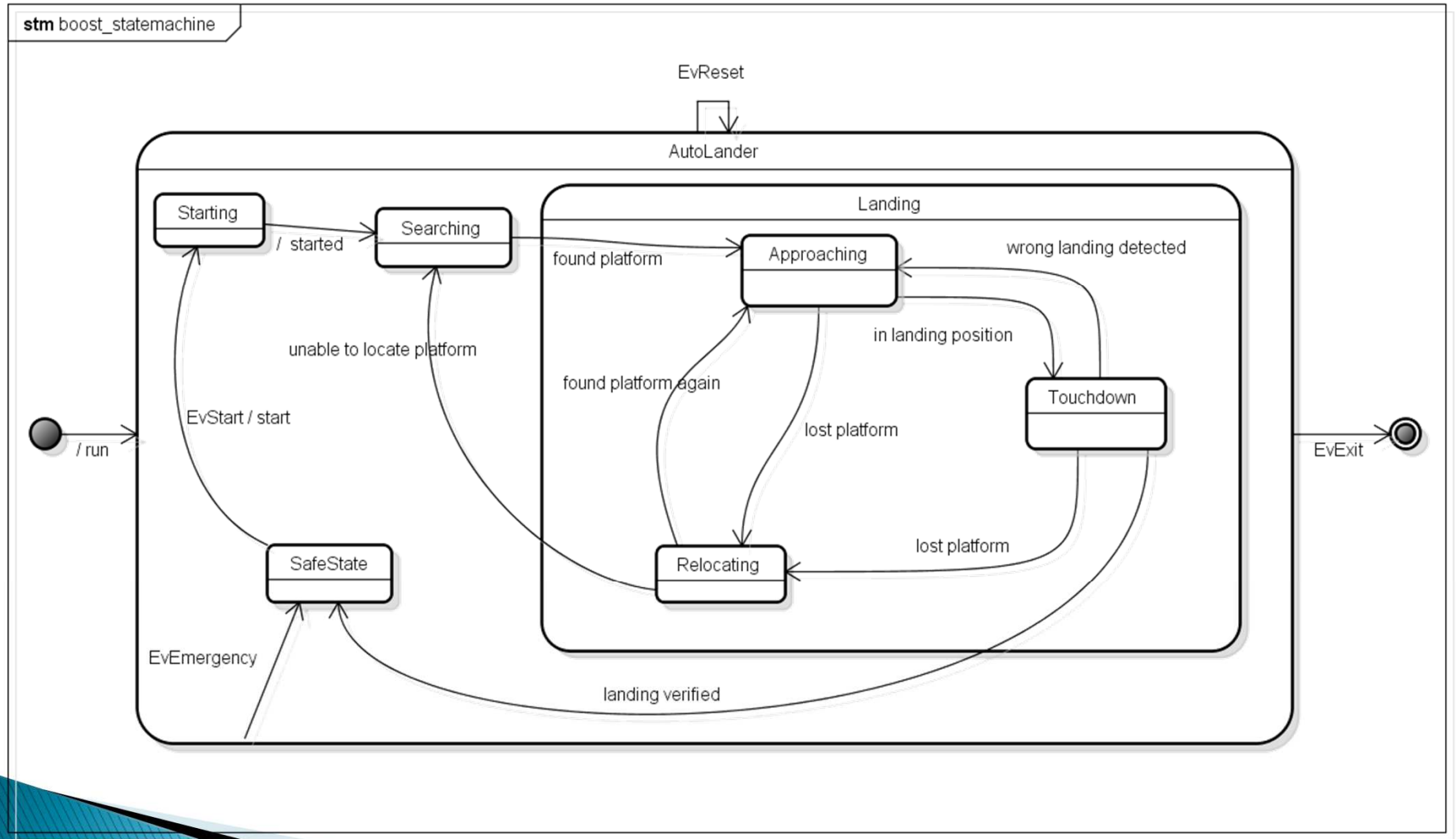
What We Did / the gory details

- Existing code used:
  - *joynode*
  - basics from *ekf* | *ardrone_localizer*
  - *ar_recog*

- Own contribution:
  - Framework based on *boost::statechart*
  - Enhanced joystick implementation
  - Additional PID (+ extra parameters) for height
  - Extended EKF with velocity
  - Applied (“recursive”) multi tier marker



What We Did / what it should do



The Results / what it actually does …

- You'll see:
  - Search (manual)
  - Approach
  - (Relocate)
  - Touchdown

What We Gained / lessons learned

- Stable implementation of the wanted behavior
  - Predict velocity
  - Approach and touchdown on moving platform

- Learned:
  - Working with dirty/real data means *lots* of (dirty) manual tuning

- Further work:
  - Tune parameters! (PID, touchdown conditions, approach/state-switch conditions, etc…)
  - Automatic search (given that the safe area is big enough!)

Thanks! =)