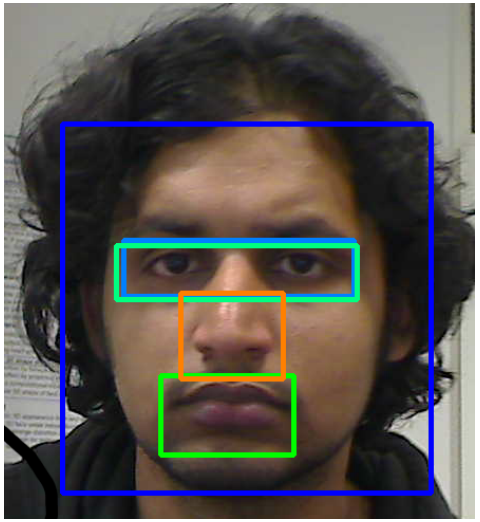
Gesture Based Control

of the Ardrone quadcopter

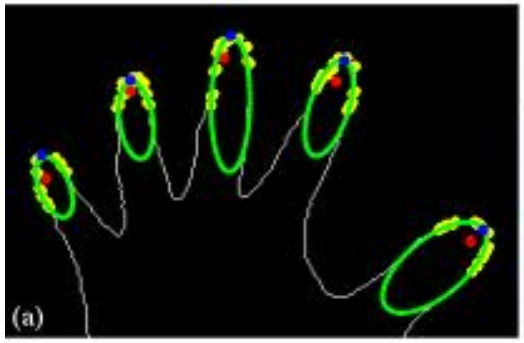
Team - weißbier
Daniel Macnish
Nikhil Somani

Motivation / Application

ARToolkit Marker tracking



OpenCV face tracking



finger tips tracking

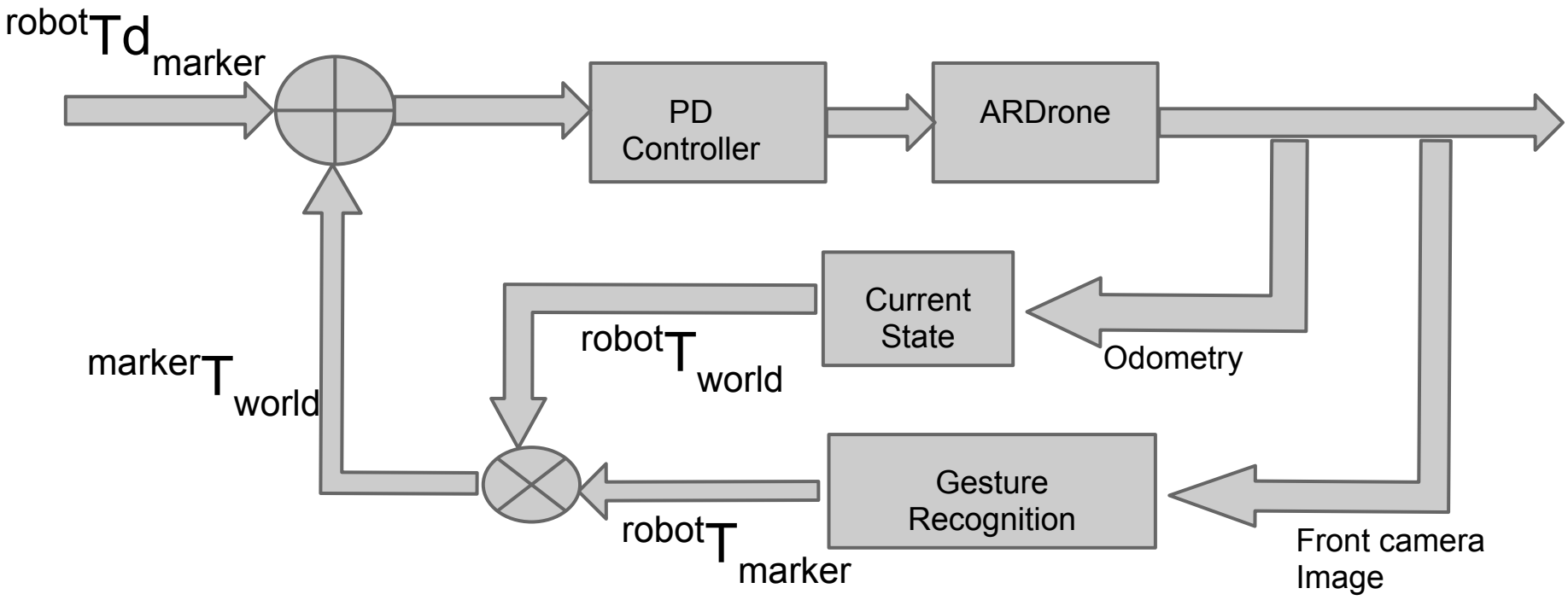
Problem Specification

Question: Can we control the x, y, and z velocities, as well as yaw angle of the quadcopter using gestures measured from the quadcopter itself?

Mathematically: Given Xq (the measured gesture in the frame of the quadrocopter), and Yt (the current pose of the quadcopter in the world frame), can we calculate Xg (the gesture in world frame), and use Xg to calculate suitable values for Zt (velocity commands)?

Why is this challenging? We may need to compensate for the pose of the quadcopter. Plus, we can always make it more challenging by modifying the type of gesture used!

Control Architecture



The Plan:

- By next thursday (end of week 1), have detection of the marker working, as well as compensation for the pose of the quadcopter.
- By end of week 2, have the quacopter controlled in one axis, by the pose of the marker.
- By the end of week 3, have the quadcopter controlled in two axes.

Thanks!

Questions?