



Gesture Based Control

of the Ardrone quadcopter



Team - weißbier
Daniel Macnish
Nikhil Somani



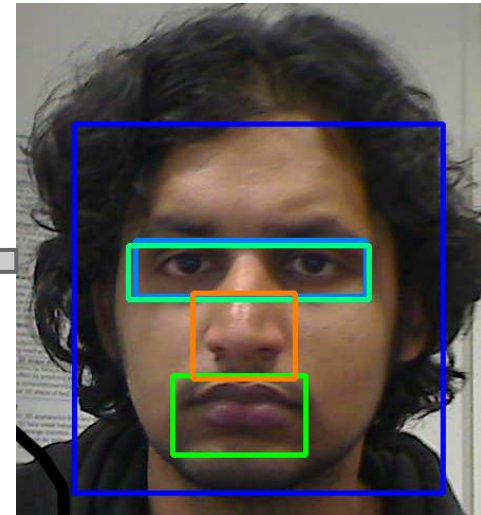
Motivation / Application

Was to control the x, y, and z velocities, as well as the yaw angle of the quadcopter using gestures measured from the quadcopter itself.

The gestures(marker/human face) were to be observed using the front facing camera.



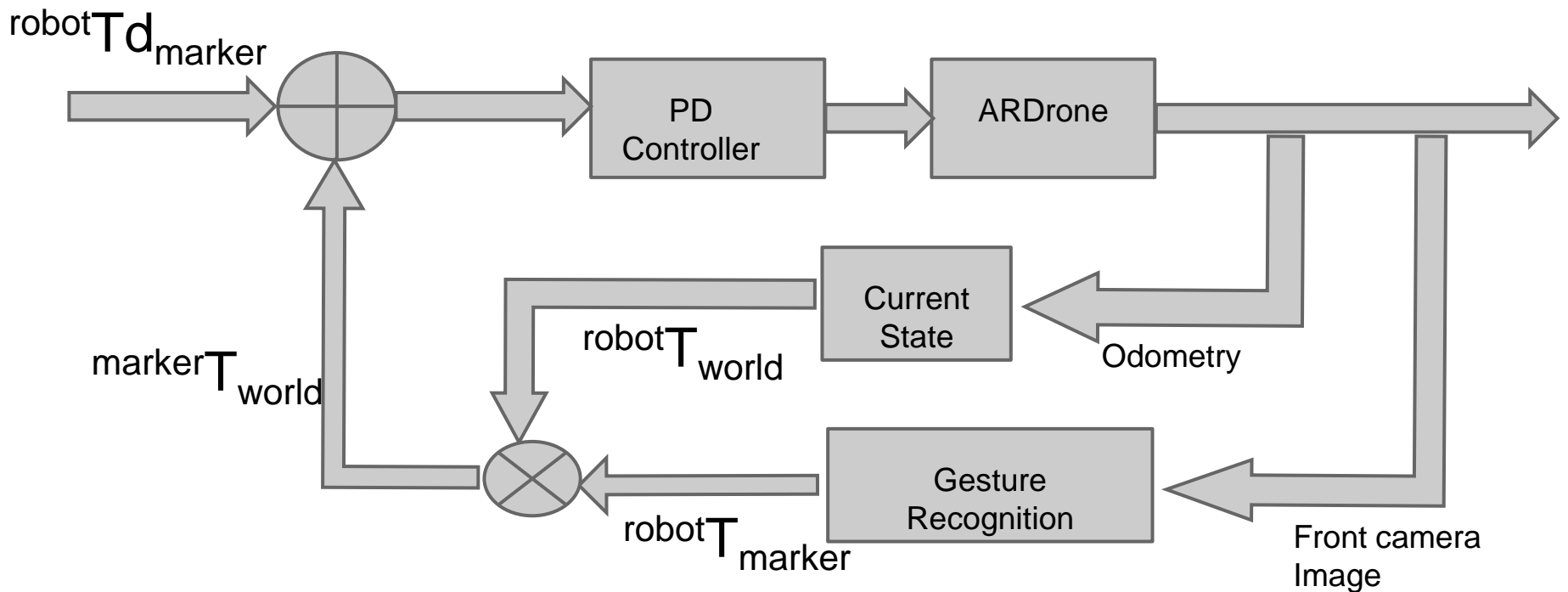
ARToolkit Marker tracking



OpenCV face tracking

Approach

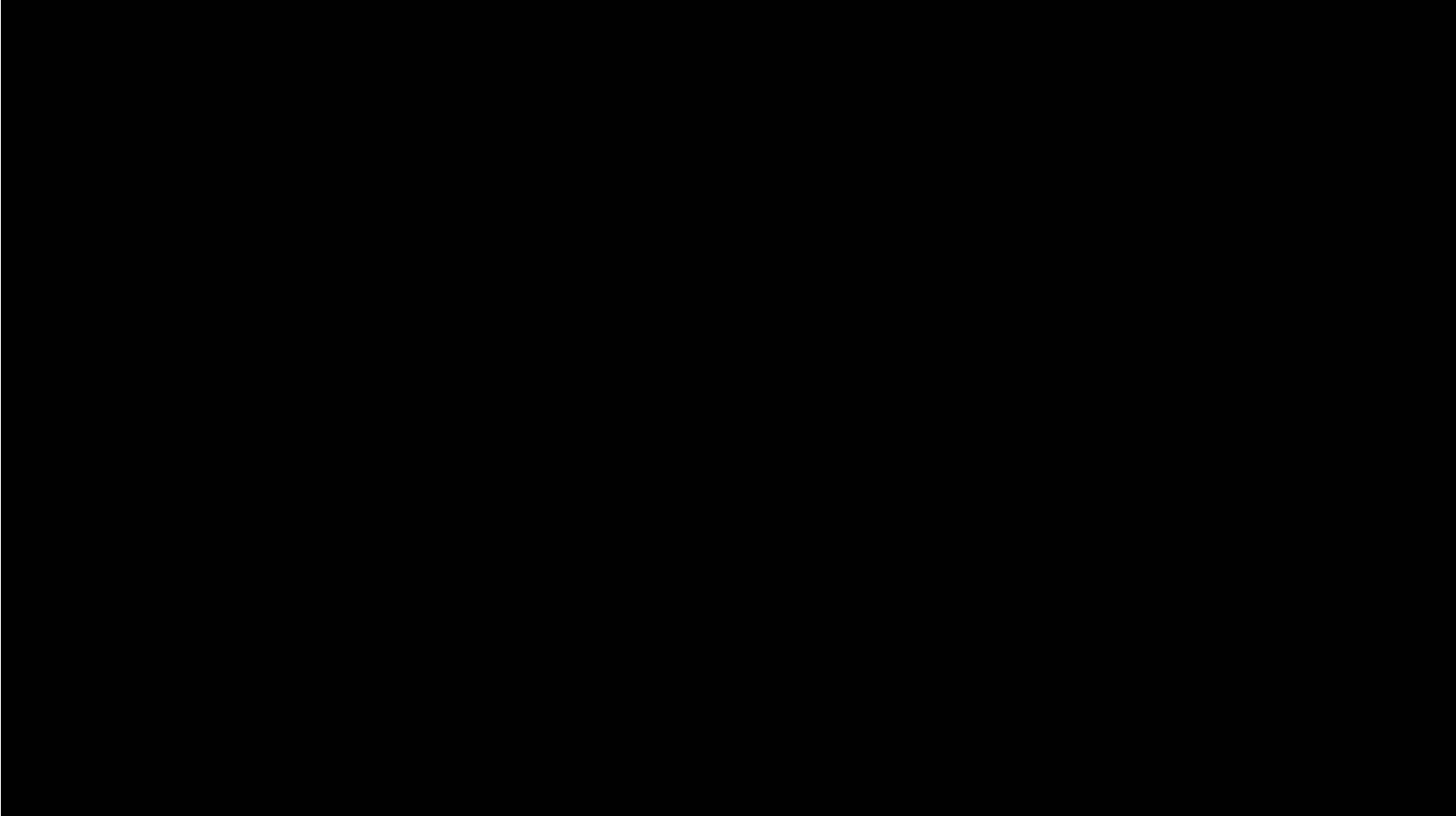
- Initial task was to achieve control of the quadcopter using a standard ARtoolkit marker in one axis.
- Progress to multiple axes.
- Change from a standard marker to facial recognition.



Results

- ✓ Simulated control of all three linear axes (x,y, and z) in RVIZ, using bag-files and real time data.
- ✓ Marker recognition, and corresponding control of the quadcopter in x and z axes.

- x In reality control of the y-axis (side-to-side) movement was not practical.
 - The primary reason for this was the camera field of view was too narrow.
- x Facial recognition and tracking using the ARdrone's camera.
 - Time was not sufficient



Conclusions

- Using the current hardware on the Ardrone, control of the y axis is not stable using the front facing camera.
- With a higher resolution, wide angle camera y-axis control would be more practical.
- Would be interesting to explore yaw control.

Thanks!

Questions?