**Viking CV Computer Vision Firmware Release Notes**

**2014.2.4**

1. cv::inRange(img\_hsv, cv::Scalar(74, 50, 40), cv::Scalar(94, 200, 245), green\_blob)
2. Use cv::erode 3 times then cv::dilate three times to get rid of the small stuff
3. Use rough rule of width or height 2.5 times greater to determine vision target

**2014.2.3**

cv::inRange(img\_hsv, cv::Scalar(68, 32, 64), cv::Scalar(76, 128, 128), green\_blob);

**2014.2.2**

Capture green\_blob jpeg only every 16th time

Adjust color of green detect to range 73 to 76

**2014.2.1**

Green vision targets are now detected by being very bright and within 5 degrees of horizontal or vertical. The camera must be mounted close to vertically for this to work in practice.

**2014.2.0**

Major change in scope of the requirements. We were unable to find a fixed location for the camera on the robot that was also high enough off the ground to get the ball entirely into the frame at close range where it matters most for collection.

* Camera will be fixed at a low position to be used only for shooting in autonomous mode to watch dynamic vision targets and indicate when the goal is “hot”
* The primary mission for the BeagleBone will now be running the LED strips
* Operation of the LED strips will be different depending on activity.
* New communication classes have been added to allow the cRio to set the mode of operation for the LED strips. The cRop code just needs to write a single digit in the same way it currently writes “GET” to start the flow of data.
* A new data item has been added to the end of the target info text to reflect the current mode of operation for the LED strip

**2014.1.3**

Calibration program

* Blue ball only
* Finds largest blob without attempt to filter based on size
* Display of most things on the console suppressed – only X,Y pixel and radius displayed

**2014.1.2**

* Right/Left green target indicators should now work if presented with a realistic vision target.
* Code for detection of the color and rectangular shape was verified during calibration tests. New code for detection of static and dynamic targets based on aspect ratio needs to be verified using the C930e camera and LED illuminated targets.
* The tolerance for detection is currently set to 5% of aspect ratio. Static and dynamic targets differ by more than 20% so this should work well.
* Aspect ratio is used but size is not, so smaller targets can be used for test purposes. For example the real static vision target is 2’8” x 4” and the dynamic one 1’11.5” x 4”, but the following smaller targets should be detected during test:
* Vertical (static) target 8” x 1”
* Horizontal (dynamic) target 5.875” X 1”

**2014.1.1**

Interface -- Message Text format changed

* Removed -- m\_isGreenTargetLit
* Added at start of message:
* int m\_timeSinceLastCameraFrameMilliseconds;
* int m\_timeLatencyThisCameraFrameMilliseconds;
* int m\_isRightGreenTargetLit;
* int m\_isLeftGreenTargetLit;
* Right/Left green target indicators will always be false -- green blob detection will be added in next build

Other changes:

Instrumentation display corrected

Added version display

Performance improvements:

* Was dropping 20-30 frames out of 50, now 5 to 8
* Average time between frames to cRio approx. 100ms.
* Average latency added by vision processing approx. 100ms.