

3 Alternative Design Proposals

Microprocessor

| | Cost | Size | Complexity | Power | |
|--------------------|------|------|------------|-------|----|
| Samsung Artik 530s | 5 | 5 | 5 | 5 | 20 |
| Raspberry Pi | 8 | 5 | 3 | 3 | 18 |
| Samsung Artik 7 | 2 | 4 | 5 | 8 | 19 |

Scoring: 5 is most important / 5 is best compared to other options

Description: Our current plans are working with the Samsung Artik 530s, and that is because it is very well rounded in the size, cost and complexity. The biggest issue with the Pi is being a much lower powered device, potentially causing issues, and making it much more complex, possibly requiring more devices, and more complexity. Artik 7 is very similar, upping the price, but potentially making the whole process smoother.

CONCLUSION: we plan to use **Samsung Artik 530**

| Software Tool Selection | Processing power | Ease of use/prior experience | Resources | Capability | |
|--------------------------------|------------------|------------------------------|-----------|------------|----|
| Tensorflow | 7 | 5 | 8 | 9 | 29 |
| OpenCV | 4 | 7 | 3 | 5 | 20 |
| MATLAB | 4 | 7 | 6 | 9 | 26 |

Scoring: 10 is most important / 10 is best compared to other options

Description: Tensorflow gets a big plus in processing power, due to TensorFlow Lite existing. OpenCV and MATLAB do not seem to have this advantage. Much of our prior experience is in MATLAB but we have some Tensorflow experience. We have none with OpenCV, although it seems simpler. In terms of resources, Tensorflow has a huge advantage.

CONCLUSION: we plan to use Tensorflow