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**Problem:** The recommended accuracy of thermal temperature measurement is +- 0.5 degrees Celsius. However, the thermal camera that is most appropriate for our design needs only has a pixel accuracy of +- 2 Celsius

**Solution:** The field of view of our selected camera (the MLX90640) was examined along with the average surface Area of a person’s forehead. It was found that about 8 pixels would land on the forehead of an individual 0.75 meters away and 16 pixels 0.5 meters away. It was determined that if the temperature readings of these pixels were averaged an accuracy of +- 0.5 degrees Celsius could be achieved. This is because after 12 pixels the Standard Error of the average of those 12 pixels was less than or equal to 0.25.

Furthermore, this is still achievable when a person is at such a distance that 12 pixels on the forehead can’t be visualized at once. This is because of the refresh rate of the thermal camera. At least every ¼ of a second the camera refreshes and takes all new measurements. The pixels of this new frame can be averaged with the previous frame to obtain an average with a Standard Error less than or equal to 0.25.

This will of course require knowledge of how far away the person getting their temperature measured is away from the camera. As such a time of flight (TOF) ranging sensor will need to be included in the design.