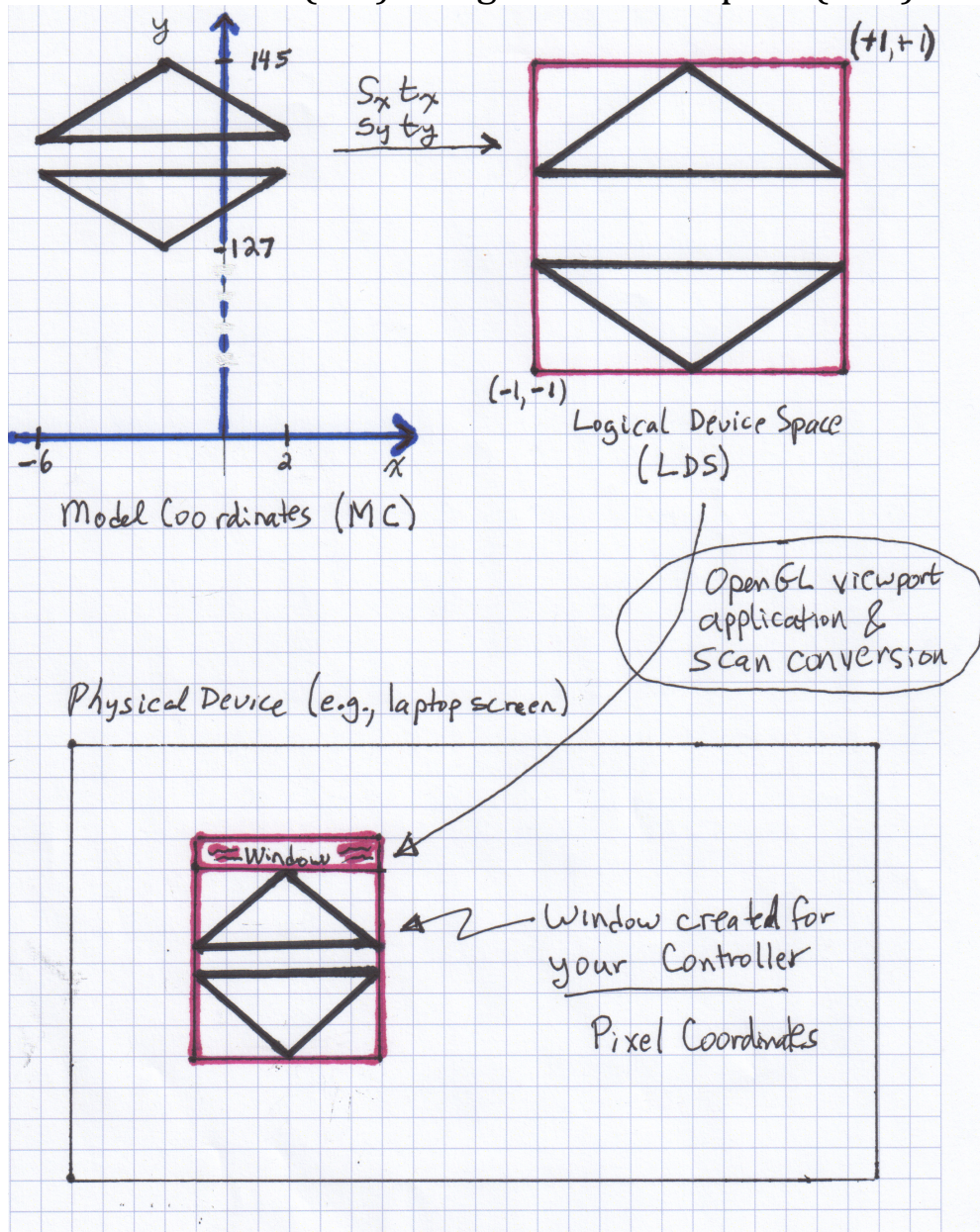


Model Coordinates (MC) – Logical Device Space (LDS) – Pixels



Model Coordinate "Bounding Box" containing the two triangles:

$$(x_{min} = -6, x_{max} = 2, y_{min} = -127, y_{max} = 145)$$

We wish to map this bounding box to the entire extent of LDS space: $-1 \leq x, y \leq +1$. This will be a linear map involving a scale factor, s , and a translation, t , in x and y :

$$x_{LDS} = s_x * x_{MC} + t_x \quad \text{and} \quad y_{LDS} = s_y * y_{MC} + t_y$$

such that:

$$-6 \leq x_{MC} \leq 2 \rightarrow -1 \leq x_{LDS} \leq 1 \quad \text{and} \quad -127 \leq y_{MC} \leq 145 \rightarrow -1 \leq y_{LDS} \leq 1$$

Exercises:

1. Show that $s_x = 0.25$ and $t_x = 0.5$.
2. Derive s_y and t_y .
3. Derive expressions for s_x , t_x , s_y , and t_y for an arbitrary $(x_{min}, x_{max}, y_{min}, y_{max})$.