Subject: Approximate distance calculation Posted by mirek on Sat, 26 Aug 2017 07:55:49 GMT View Forum Message <> Reply to Message

While working on OSD firmware for my FPV plane, I have started playing with the idea how to calculate fast distance approximation:

```
int ihypot(int x, int y)

{

if(x < 0)

x = -x;

if(y < 0)

y = -y;

if(x < y)

Swap(x, y);

if(y < (x >> 2) + (x >> 3))

return x + (y >> 3) + (y >> 5);

y -= (x >> 2) + (x >> 5);

return x + (y >> 1) + (y >> 4);

}
```

This is approximation of  $sqrt(x^*x + y^*y)$ .

- if max(x, y) < 168, absolute error < 4 (this has more to do with integer rounding)

- otherwise, the error is less than 2%

Putting it here so that perhaps it can be googled if somebody is looking for something like it...

