NOKIA Developer

How to calculate the direction of movement

To calculate the direction of movement enough to know coordinates of two consistently received landmarks.

If you use the Cartesian coordinate system and adopt the longitude on the axis "X", latitude on the axis "Y" - then it is possible to calculate the vector of movement.

The following image demonstrates how to calculate vector of the movement and the angle of the vector:



Depending on the direction, you must perform correction of meaning angle.

The following code snippet demonstrates how to calculate the angle of the movements (relative to north), knowing consistently received two landmarks.

```
TReal alpha; // result
// calculate vector coordinates
TReal y = LatitudeB - LatitudeA,
      x = LongitudeB - LongitudeA;
// hypotenuse
TReal sqrtResult = 0;
Math :: Sqrt( sqrtResult, x * x + y * y );
TReal angle;
Math :: ASin( angle, Abs( x ) / sqrtResult );
alpha = angle * 180 / KPi; // angle from North in degrees
// correction
if(x > 0)
{
   // I or IV quadrant
   if(y < 0)
   {
      // IV quadrant
      alpha = 180 - alpha;
   }
}
else
{
   // II or III quadrant
   if(y > 0)
   {
      // II quadrant
```

```
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alpha = -alpha;
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else
alpha = alpha - 180;
}
```