
Subject: Re: How to implment a rubber band Class in u++

Posted by [mrjt](#) on Wed, 06 Aug 2008 09:04:05 GMT

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I can think of two possible optimisations (besides PolyLine, which is definitely the first one to use)

1- Avoid adding adjacent collinear points. In practice this is a very minor optimisation except for special cases, but it appeals to my sense of correctness.

```
class RubberBand : public LocalLoop
{
public:
    virtual void MouseMove(Point p, dword keyflags) { AddPoint(p); GetMaster().Refresh(); }
    virtual void LeftUp(Point p, dword keyflags)    { EndLoop(); }
    virtual void RightUp(Point p, dword keyflags)   { EndLoop(); }
```

```
    const Vector<Point> & GetPoints()    { return points; }
```

```
    void    Clear()    { points.Clear(); }
```

```
private:
```

```
    Vector<Point> points;
```

```
    void AddPoint(const Point &newp);
};
```

```
void RubberBand::AddPoint(const Point &newp)
```

```
{
    if (points.GetCount() < 2)
        return points.Add(newp);
    // Get line vectors
    const Point &p = points[points.GetCount()-2];
    Point p1 = points.Top() - p;
    Point p2 = newp - p;
    // If gradient is different, add the new point
    if (p1.x*p2.y - p2.x*p1.y)
        points.Add(newp);
    // Otherwise update last points
    else
        points.Top() = newp;
}
```

2- Use a back buffer. Providing you have a static background (one that will not change while the rubber band is being drawn), you can use a back buffer to cache the background + the current rubber band and only draw the last line.

This was a major improvement for me, eliminating flickering entirely.

```
RubberBand band;
```

```
BackDraw back;
```

```
Size  backsz;
```

```

void LeftDown(Point p, dword keyflags)
{
    band.Clear();
    band.SetMaster(*this);
    Size sz = GetSize();
    if (sz != backsz) {
        back.Create(sz);
        backsz = sz;
    }
    Paint(back);
    band.Run();
    Refresh();
}

void Paint(Draw& w)
{
    const Vector<Point> &p = band.GetPoints();
    if (!band.InLoop()) {
        // Normal painting
        w.DrawRect(GetSize(), White);
        if (p.GetCount() >= 2) {
            w.DrawPolyline(p);
            w.DrawLine(p[p.GetCount()-1], p[0]);
        }
    }
    else {
        // RubberBand painting
        if (p.GetCount() >= 2)
            back.DrawLine(p[p.GetCount()-2], p.Top());
        back.Put(w, 0, 0);
        w.DrawText(4, 4, AsString(p.GetCount()));
    }
}

```
