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S60 3rd Edition

S60 5th Edition

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????????????????GPS??

????CLocation????GPS????????????????10????

???S60???FP2????????????????Location??

- MMP??

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CAPABILITY Location
LIBRARY lbs.lib

- ???

```
#include <lbsSatellite.h>
```

```
class MPositionObserver  
{  
public:  
    virtual void PositionUpdatedL(TPositionInfoBase& aPosInfo) = 0;  
    virtual void ErrorL(TInt aError) = 0;  
};
```

```
#include <lbs.h>  
#include <LbsSatellite.h>
```

```
// FORWARD DECLARATIONS  
class MPositionObserver;
```

```
class CLocation : public CActive  
{  
public:  
  
    static CLocation* NewL( TInt aInterval,  
        MPositionObserver& aPositionListener ) ;  
    virtual ~CLocation();  
  
protected: // from CActive  
    void DoCancel();  
    void RunL();  
    TInt RunError(TInt aError);
```

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```
private:
    void ConstructL( );
    CLocation( TInt aInterval,
              MPositionObserver& aPositionListener );
    void DoInitialiseL();
    void PositionUpdatedL();
    void Wait();
    void CancelWait();
    void Start();
    static TInt PeriodicTick(TAny* aObject);
    void PositionLost();

public:
    void Pause();
    void Continue();
    TPositionInfoBase* CurrentPosition();

private:    // Data

    // The id of the currently used PSY
    TPositionModuleId    iUsedPsy;

    // Position server
    RPositionServer      iPosServer;

    // Positioner
    RPositioner          iPositioner;

    // Basic location info
    TPositionInfo        iPositionInfo;

    TInt                  iInterval;
    TInt                  iUpdateTimeout;

    // Position listener
    MPositionObserver&   iPositionListener;

    // The id of the used psy
    TPositionUpdateOptions    iUpdateops;

    // Position info base
    TPositionInfoBase*        iPosInfoBase;

    // State variable used to mark if we are
    // getting last known position
    TBool                      iGettingLastknownPosition;

    CPeriodic*                iPeriodic;
};
```

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```
#include <Lbs.h>
#include <eikenv.h>

// CONSTANTS
const TInt KSecond = 1000000;
```

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```
const TInt KMaxAge = KSecond;
const TInt KErrBuffer = 100;
// GPS sleeping time after error
const TInt KGPSsleepingMinor = KSecond*10;

//The name of the requestor
_LIT(KRequestor, "MyLocationApp");

CLocation::CLocation(TInt aInterval, MPositionObserver& aPositionListener)
    : CActive(CActive::EPriorityStandard),
    iInterval(aInterval),
    iPositionListener( aPositionListener ),
    iPosInfoBase( &iPositionInfo ),
    iGettingLastknownPosition( ETrue )
    {
    }

void CLocation::ConstructL()
    {
    // Set update interval to one second to receive one position data
    // per second
    iUpdateops.SetUpdateInterval(TTimeIntervalMicroSeconds(iInterval));

    // If position server could not get position
    // In two minutes it will terminate the position request
    iUpdateops.SetUpdateTimeOut(TTimeIntervalMicroSeconds(iUpdateTime));

    // Positions which have time stamp below KMaxAge can be reused
    iUpdateops.SetMaxUpdateAge(TTimeIntervalMicroSeconds(KMaxAge));

    // Enables location framework to send partial position data
    iUpdateops.SetAcceptPartialUpdates(ETrue);

    // Add this position requestor to the active scheduler
    CActiveScheduler::Add( this );

    // Initialise the position request sequence
    DoInitialiseL();
    }

CLocation* CLocation::NewL(TInt aInterval,
MPositionObserver& aPositionListener )
    {
    //Create the object
    CLocation* self = new( ELeave ) CLocation(
        aInterval, aPositionListener);

    //Push to the cleanup stack
    CleanupStack::PushL( self );

    //Construct the object
    self->ConstructL();

    //Remove from cleanup stack
    CleanupStack::Pop( self );

    //Return pointer to the created object
    return self;
    }

CLocation::~~CLocation()
    {
    }
```

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```
// Cancel active object
Cancel();

// Close the positioner
iPositioner.Close();

// Close the session to the position server
iPosServer.Close();
}

void CLocation::DoCancel()
{
    CancelWait();

    //If we are getting the last known position
    if ( iGettingLastknownPosition )
    {
        //Cancel the last known position request
        iPositioner.CancelRequest(EPositionerGetLastKnownPosition);
    }
    else
    {
        iPositioner.CancelRequest(EPositionerNotifyPositionUpdate);
    }

    iGettingLastknownPosition = ETrue;
}

void CLocation::RunL()
{
    TBuf<KPositionMaxModuleName> buffer;

    //We are not going to query the last known position anymore.
    if ( iGettingLastknownPosition )
    {
        //Mark that we are not requesting NotifyPositionUpdate
        iGettingLastknownPosition = EFalse;
    }

    switch ( iStatus.Int() )
    {
        {
            // The fix is valid
            case KErrNone:
                {
                    // Pre process the position information
                    PositionUpdatedL();
                    break;
                }
            // The fix has only partially valid information.
            // It is guaranteed to only have a valid timestamp
            case KPositionPartialUpdate:
                {
                    // Send partial data to registered listener
                    iPositionListener.PositionUpdatedL(*iPosInfoBase);
                    // and wait a while after askin position again
                    Wait();
                    break;
                }
            // The position data could not be delivered
            case KPositionQualityLoss:
                {
                    PositionLost();
                }
        }
    }
}
```

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```
        break;
    }
    // Access is denied
    case KErrAccessDenied:
    {
        // Send error to position listener
        iPositionListener.ErrorL(KErrAccessDenied);
        break;
    }
    // Request timed out
    case KErrTimedOut:
    {
        PositionLost();
        break;
    }
    // The request was canceled
    case KErrCancel:
    {
        break;
    }
    // There is no last known position
    case KErrUnknown:
    {
        PositionLost();
        break;
    }
    // Unrecoverable errors.
    default:
    {
        // Send error to position listener
        iPositionListener.ErrorL(iStatus.Int());
        break;
    }
}

void CLocation::DoInitialiseL()
{
    // Connect to the position server
    TInt error = iPosServer.Connect( );
    TBuf<KErrBuffer> buffer;

    // The connection failed
    if ( KErrNone != error )
    {
        iPositionListener.ErrorL( error );
        return;
    }

    // Open subsession to the position server
    error = iPositioner.Open(iPosServer);

    // The opening of a subsession failed
    if ( KErrNone != error )
    {
        iPositionListener.ErrorL( error );
        iPosServer.Close();
        return;
    }

    // Set position requestor
```

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```
error = iPositioner.SetRequestor( CRequestor::ERequestorService,
    CRequestor::EFormatApplication , KRequestor );

// The requestor could not be set
if ( KErrNone != error )
    {
    iPositionListener.ErrorL( error );
    iPositioner.Close();
    iPosServer.Close();
    return;
    }

// Set update options
error = iPositioner.SetUpdateOptions( iUpdateops );

// The options could not be updated
if ( KErrNone != error )
    {
    iPositionListener.ErrorL( error );
    iPositioner.Close();
    iPosServer.Close();
    return;
    }

// Get last known position. The processing of the result
// is done in RunL method
Start();
}

TInt CLocation::RunError(TInt /*aError*/)
{
    return KErrNone;
}

void CLocation::Pause()
{
    if (IsActive())
        {
        Cancel();
        }
}

void CLocation::Continue()
{
    if (!IsActive())
        {
        Start();
        }
}

TPositionInfoBase* CLocation::CurrentPosition()
{
    return iPosInfoBase;
}

void CLocation::PositionUpdatedL()
{
    TPositionUpdateType update = iPosInfoBase->UpdateType();
    // Send GPS position
    if (update!=EPositionUpdateUnknown)
        {
        // Send position information to registered listener
```

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```
iPositionListener.PositionUpdatedL(*iPosInfoBase);
Start();
}
else
{
    Wait();
}
}

void CLocation::Wait()
{
    if (!iPeriodic)
    {
        // Close GPS handles
        Cancel();

        // Sleep
        iPeriodic = CPeriodic::NewL(CActive::EPriorityIdle);
        iPeriodic->Start(KGPSSleepingMinor, KGPSSleepingMinor,
            TCallBack(PeriodicTick, this));
    }
}

TInt CLocation::PeriodicTick(TAny* aObject)
{
    CLocation* gpslistener = (CLocation*)aObject;
    if (gpslistener)
    {
        // Cancel timer running
        gpslistener->CancelWait();

        // Start listening GPS again after waiting a while
        gpslistener->Start();
    }

    // Does not continue again
    return EFalse;
}

void CLocation::Start()
{
    if (!IsActive())
    {
        // Get last known position. The processing of the result
        // is done in RunL method
        if (iGettingLastknownPosition)
        {
            iPositioner.GetLastKnownPosition(*iPosInfoBase, iStatus);
        }
        else
        {
            iPositioner.NotifyPositionUpdate(*iPosInfoBase, iStatus);
        }

        // Set this active object active
        SetActive();
    }
}

void CLocation::CancelWait()
{
    if (iPeriodic)
```

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```
{
    iPeriodic->Cancel();
    delete iPeriodic;
    iPeriodic = NULL;
}

void CLocation::PositionLost()
{
    // Wait and then request again
    Wait();
}
</cpp>

* ???
<code cpp>
// Class that use CSearchLocation have to implement
// MPositionObserver interface. Via MPositionObserver are position
// and error messages send.
iSearchLocation = CSearchLocation::NewL(1000000*10,*this);

// Get current position
TPositionInfoBase* pos = iSearchLocation->CurrentPosition();
```

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CS001377 - Getting position data from TPositionInfoBase

S60 Platform Location Example