

Dynamic Air And Space Control Model For Advanced Automated Centralized Command And Control

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Challenging Warfare

- ▶ Management of uncertainty
- ▶ Synchronizing events in the battlefield
- ▶ Achieving superior speed of command
- ▶ Best response in the shortest time

Time Pressure



- ▶ Time needed to figure out and solve the problem
- ▶ Ability to find out the best solution

Critical Decisions

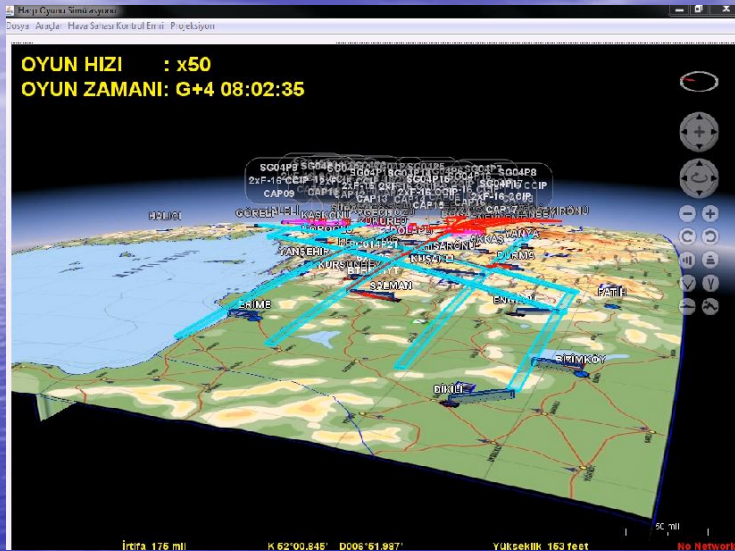


- ▶ Hard work
- ▶ Brave
- ▶ Will

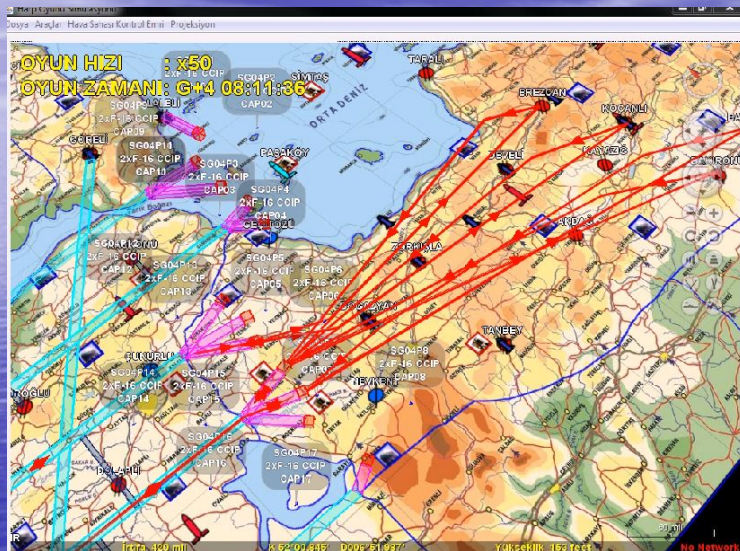
Dynamic Air and Space Control



- ▶ Novel Data Distribution Model for Tactical Units in Military Operations
- ▶ Target Optimization for Air Defence Operations



Data Distribution



Data Distribution

- ▶ Data collected from variety of sensors
- ▶ All calculations done in central computer
- ▶ Data packages prepared unique for each user
- ▶ Transferring data packages by layers

TOADO: Target Optimization for Air Defence Operations

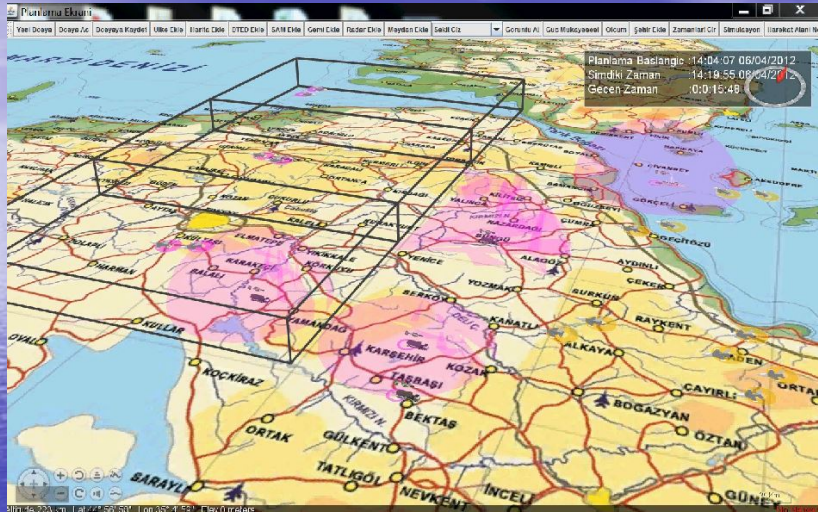


- ▶ The highest number of target hits
- ▶ The least use of source inputs

Source Inputs vs Gain

- ▶ Time of reaction to each target
- ▶ The turn around time for each resource
- ▶ Cost of resources
- ▶ **Maximizing the damage on attacking enemies**

War Game Scenario



- ▶ Attacking enemy jet fighters
- ▶ Jet fighters, SAMs and SAM carriers as defenders

Method

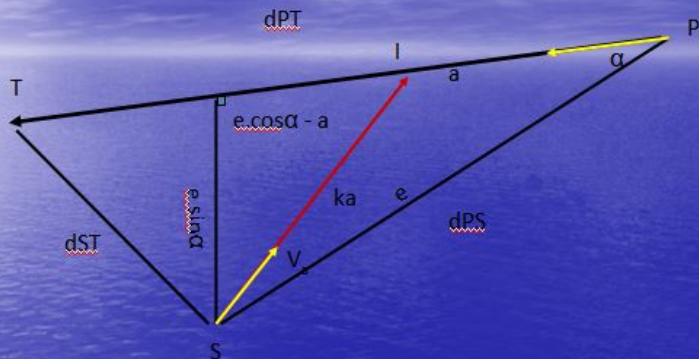


- ▶ Identify
- ▶ Label
- ▶ Hand over to decision makers

Method

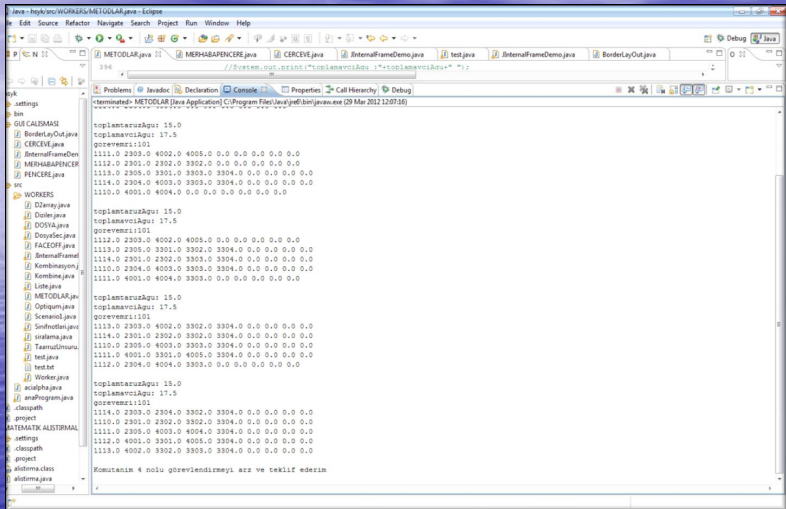


Method



- Geometry for calculation of angle α and I , point of intercept

Test result of algorithm



```
394 //System.out.println("toplamavciAgu: "+toplamavciAgu+" ");

<terminated> METODLAR [Java Application] C:\Program Files\Java\jre6\bin\java.exe (29 Mar 2012 12:07:16)

toplamtaruzAgu: 15.0
toplamavciAgu: 17.5
gorevemzi:101
1111.0 2303.0 4002.0 4005.0 0.0 0.0 0.0 0.0 0.0
1112.0 2301.0 2302.0 3302.0 0.0 0.0 0.0 0.0 0.0
1113.0 2305.0 3301.0 3303.0 3304.0 0.0 0.0 0.0 0.0
1114.0 2304.0 4003.0 3303.0 3304.0 0.0 0.0 0.0 0.0
1110.0 4001.0 4004.0 0.0 0.0 0.0 0.0 0.0 0.0

toplamtaruzAgu: 15.0
toplamavciAgu: 17.5
gorevemzi:101
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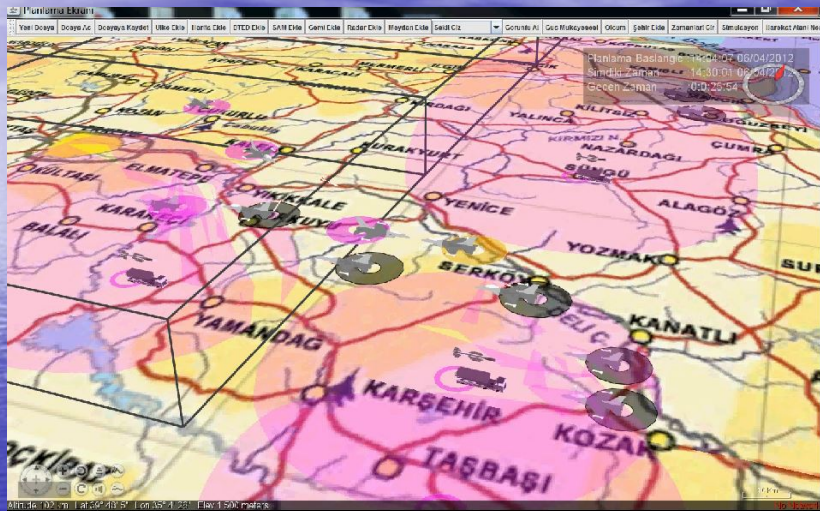
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1113.0 4002.0 3302.0 3303.0 3304.0 0.0 0.0 0.0 0.0

Komutanın 4 nolu görevlendirmeyi arz ve teklif ederim
```

Planlama Başlangıcı : 14:04:07 06/04/2012
 Sırdaki Zaman : 14:23:17 06/04/2012
 Geçen Zaman : 0:0:19:10

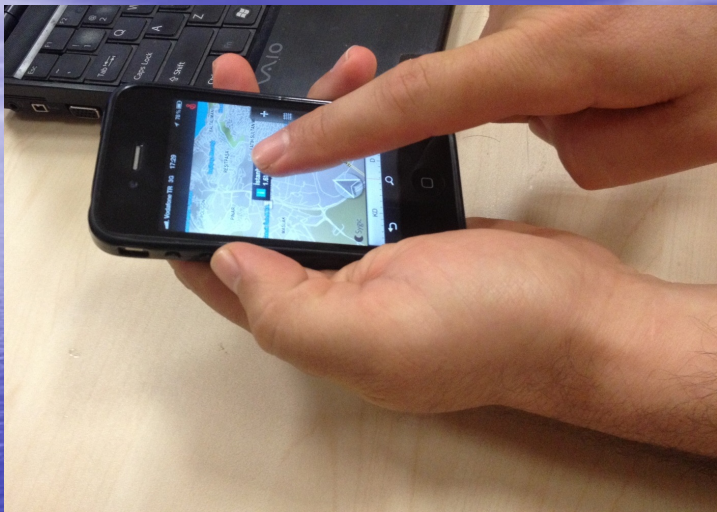
Algorithm embedded on simulation



Conclusion

- ▶ The shortest response time
- ▶ The shortest turn around time
- ▶ The cheapest weapon selection
- ▶ The highest impact on enemy

Conclusion



- Applicable in any portable computer

Questions

