

PC-based 매핑 시스템 개발을 위한  
수치사진측량 시스템

한국지형공간정보학회  
학술발표회

일자 : 1999년 10월 15일(금)

발표자

박경열, 조우석, 이현직

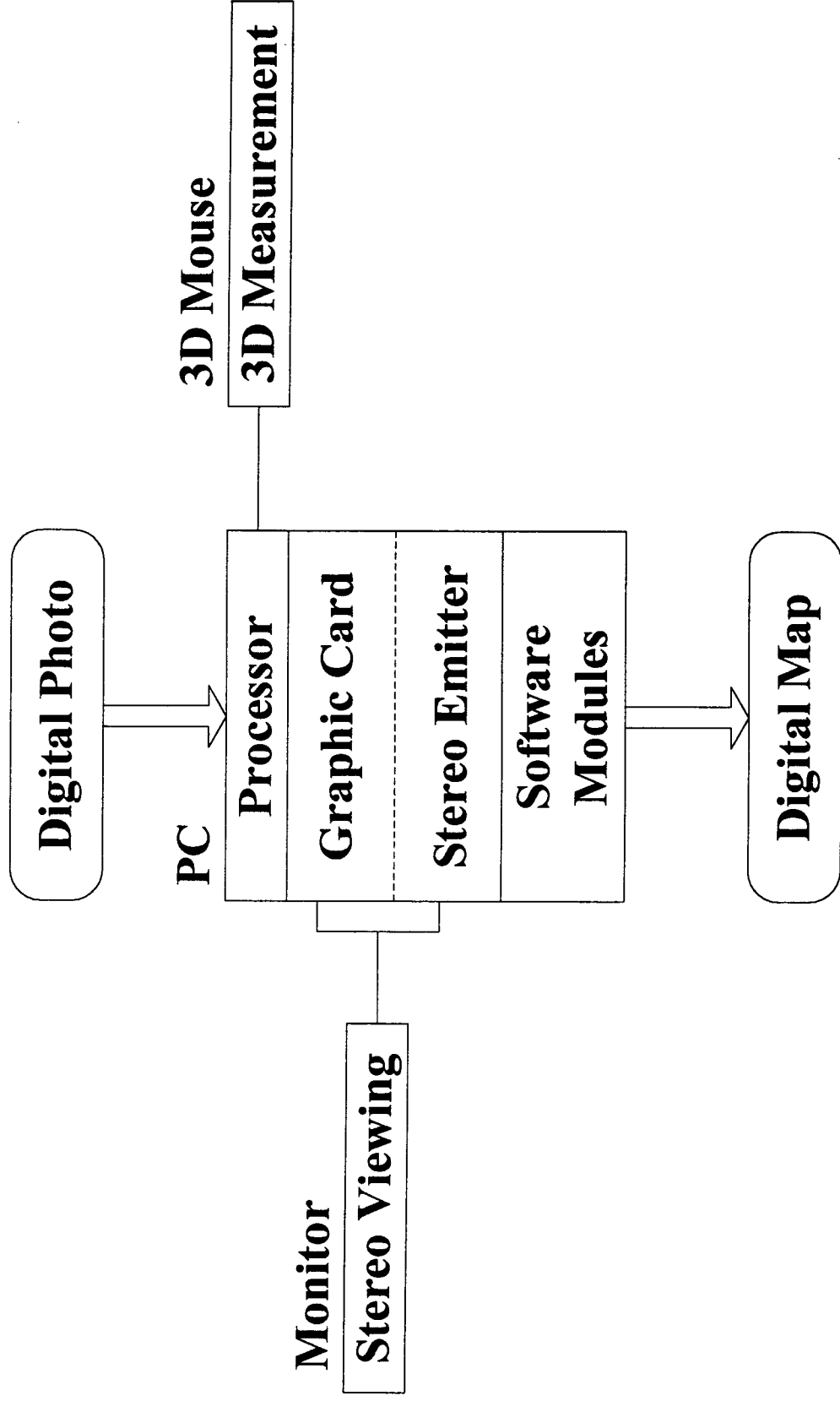
## 연구목적

- 지형관련 자료획득 및 기존 자료의 수정/갱신을 위한 PC 기반의 수치사진측량 시스템 개발
- UML을 이용한 객체지향설계의 적용
- 시스템 구성 모듈의 컴포넌트화
- ∴ 국내 최초의 상용 수치사진측량 시스템 개발 및 관련 기술의 국내 확보

# 개발환경

- 컴퓨터
  - Processor : Pentium II 400 Mherz
  - RAM : 128 Mbyte
  - HDD : 8 Gbyte
- 운영체제
  - Microsoft Windows NT 4.0
- 프로그래밍 환경
  - Microsoft Developer Studio 6.0(Visual C++ 6.0, MFC)
  - OpenGL Graphic Library
  - Active Template Library

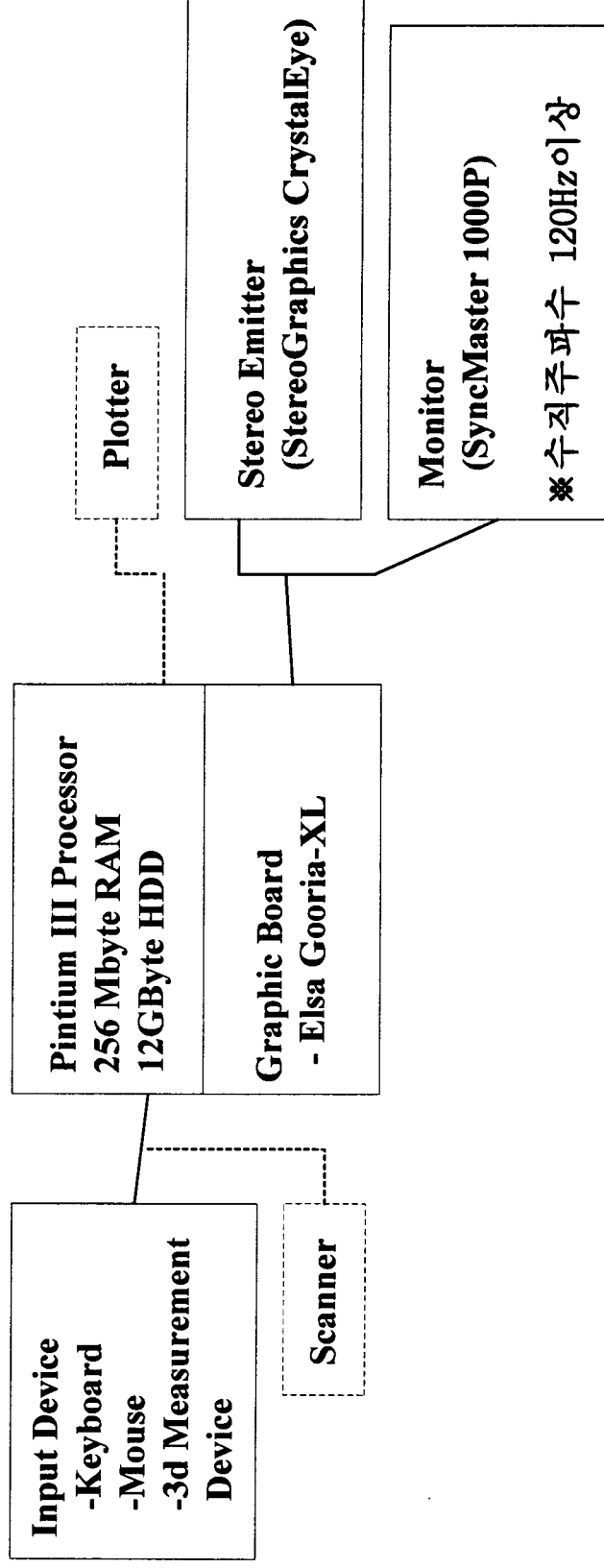
# 시스템 구성

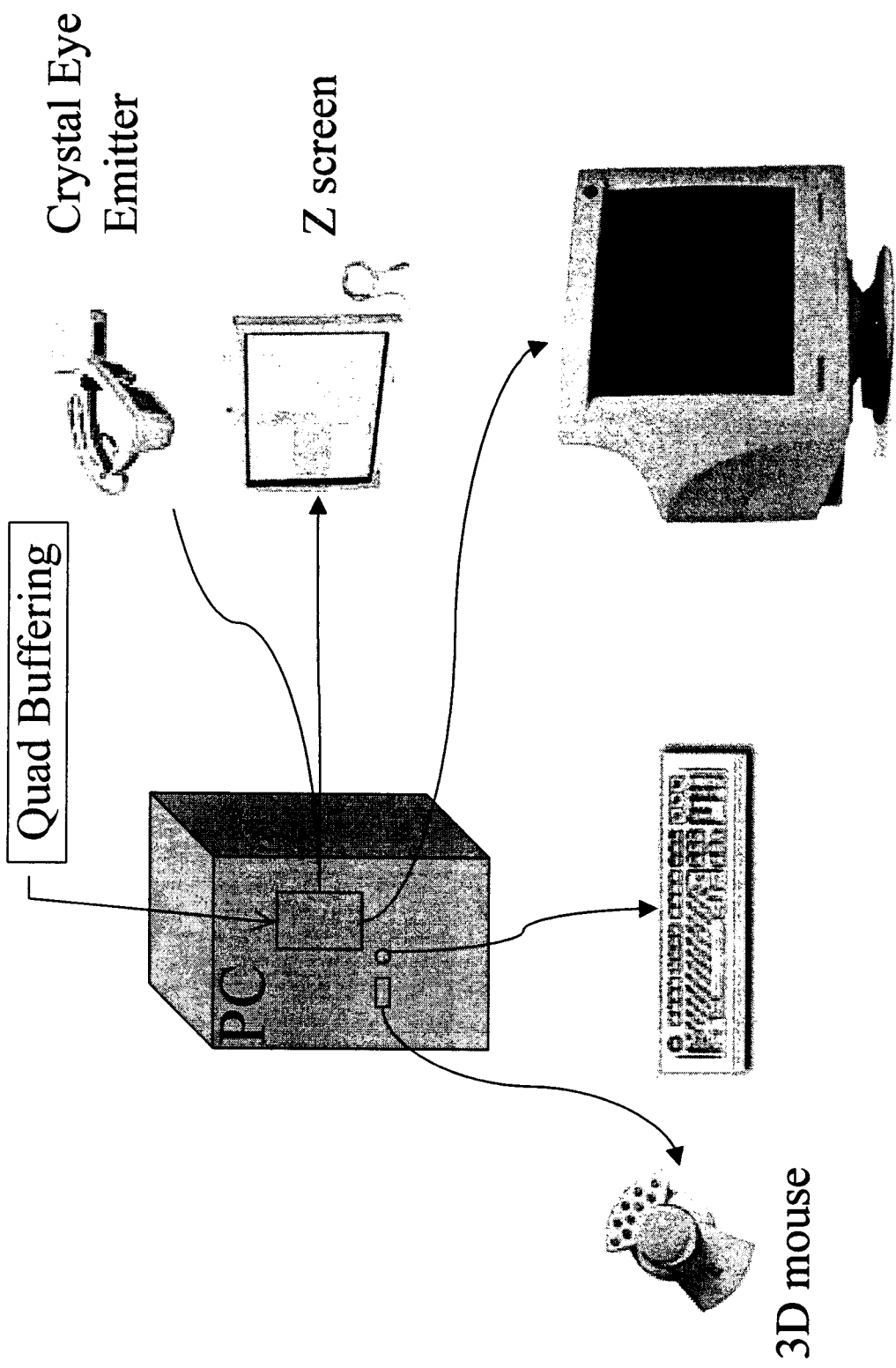


# 하드웨어 구성

- Graphic Board : Elsa Gloria-XL(16Mbyte)
- 모니터 : 삼성 SyncMaster 1000p
- 입체시 : StereoGraphics 사 CrystalEyes  
제품군
- 3D Measurement 장비(3D Mouse)
- plotter, scanner

# 하드웨어 구성 (앞면계속)





Crystal Eye  
Emmitter

Z screen

Quad Buffering

PC

3D mouse

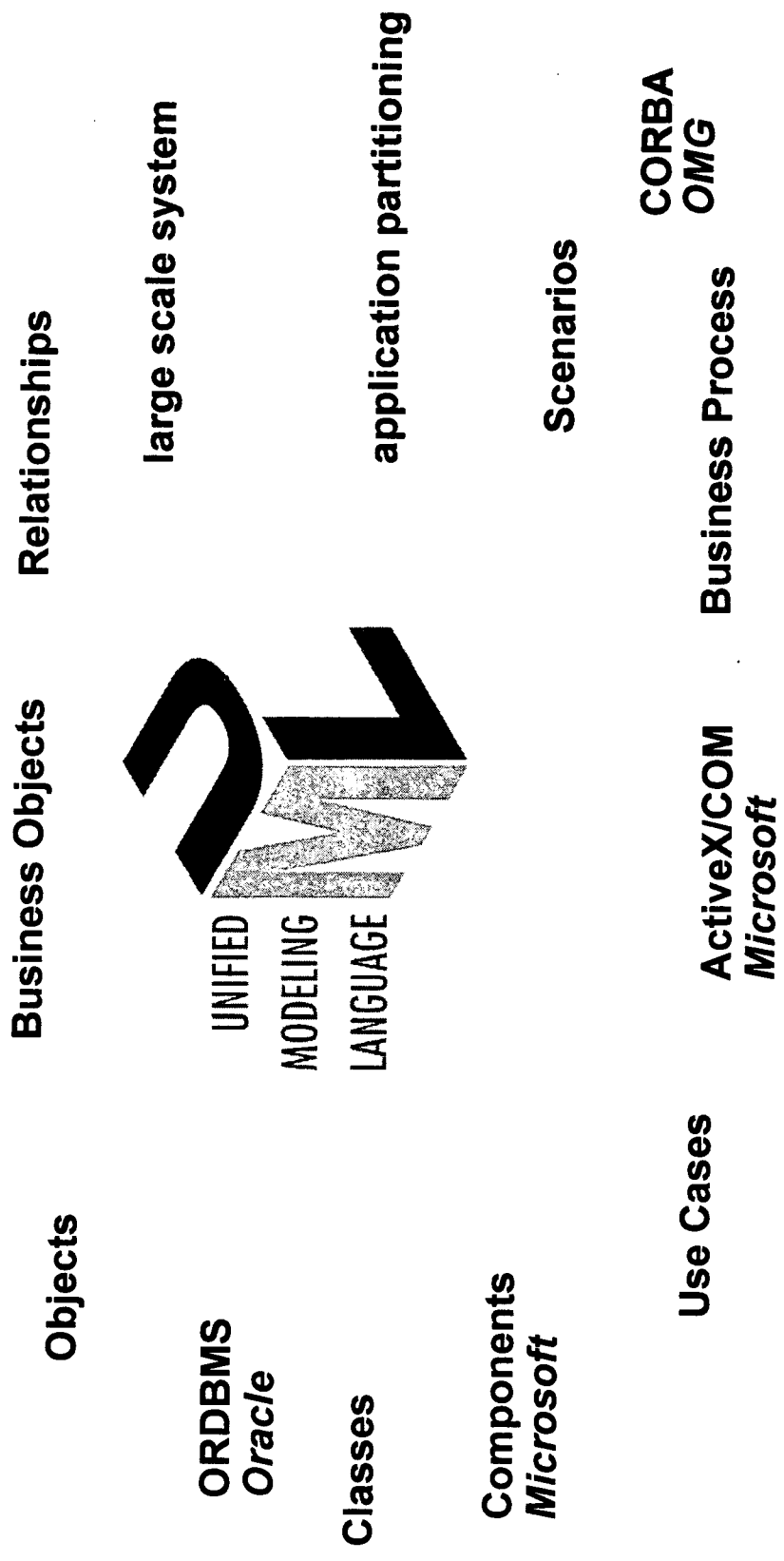
# 소프트웨어 설계

- UML 도입한 설계 및 개발
- Object Oriented Programming 방식을 채용

## \* UML

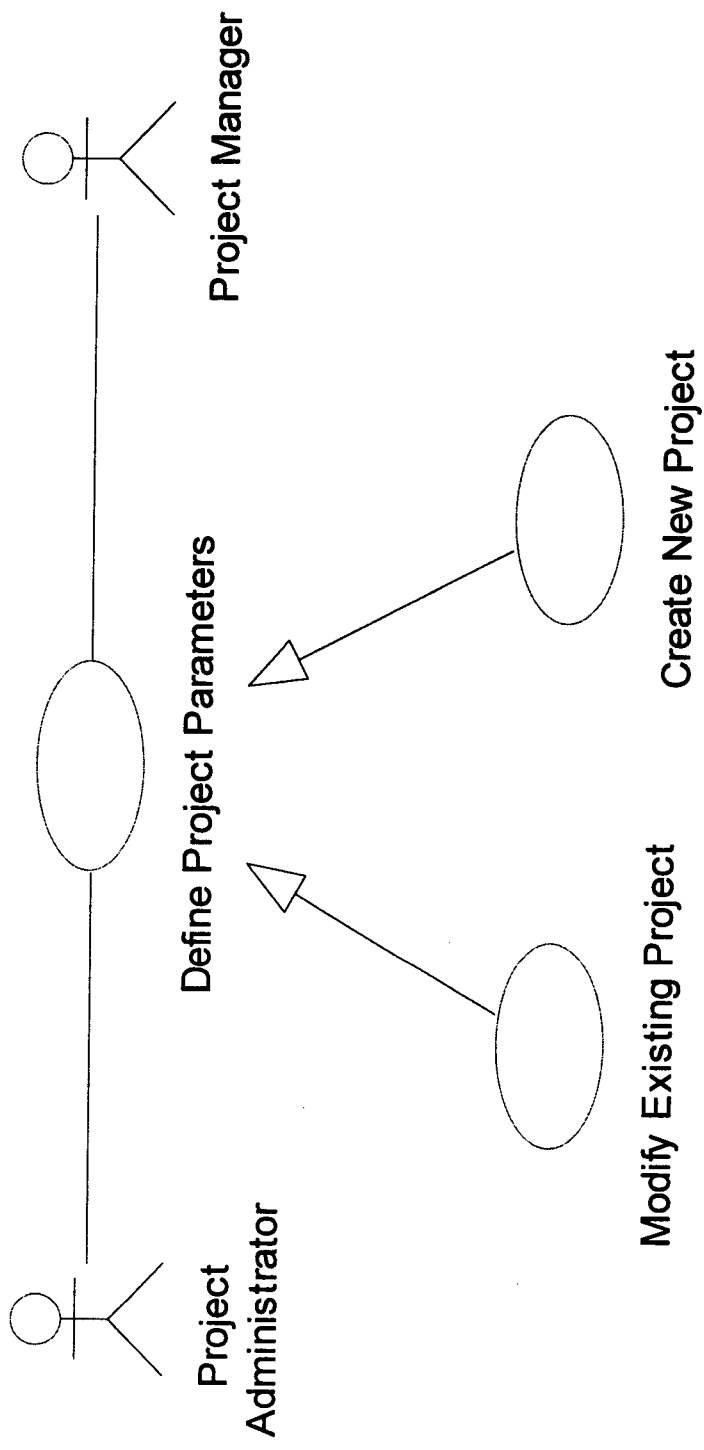
- UML stands for Unified Modeling Language
- The UML is the standard language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system
- It can be used with all processes, throughout the development life cycle, and across different implementation technologies.



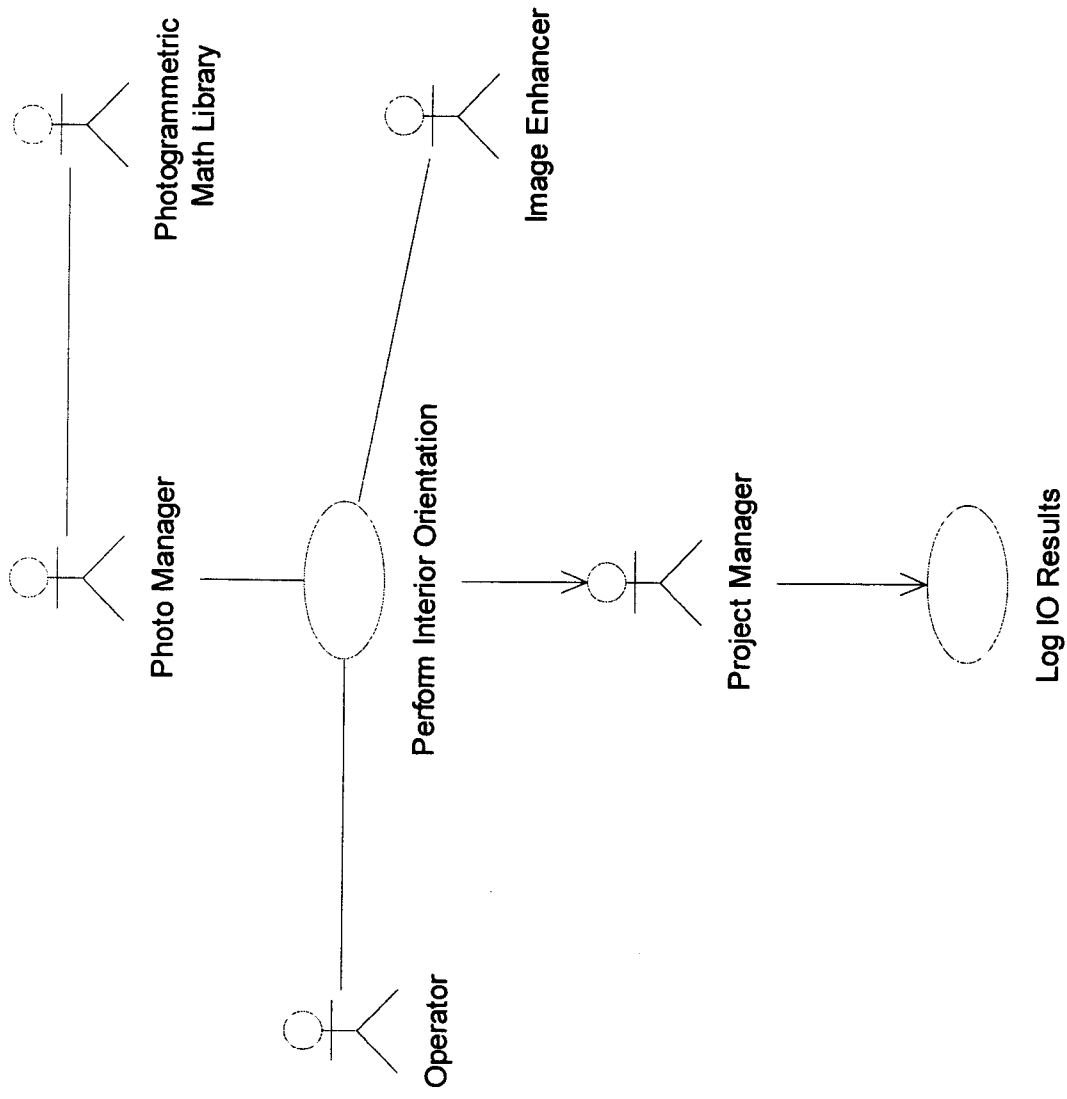


# Use Case

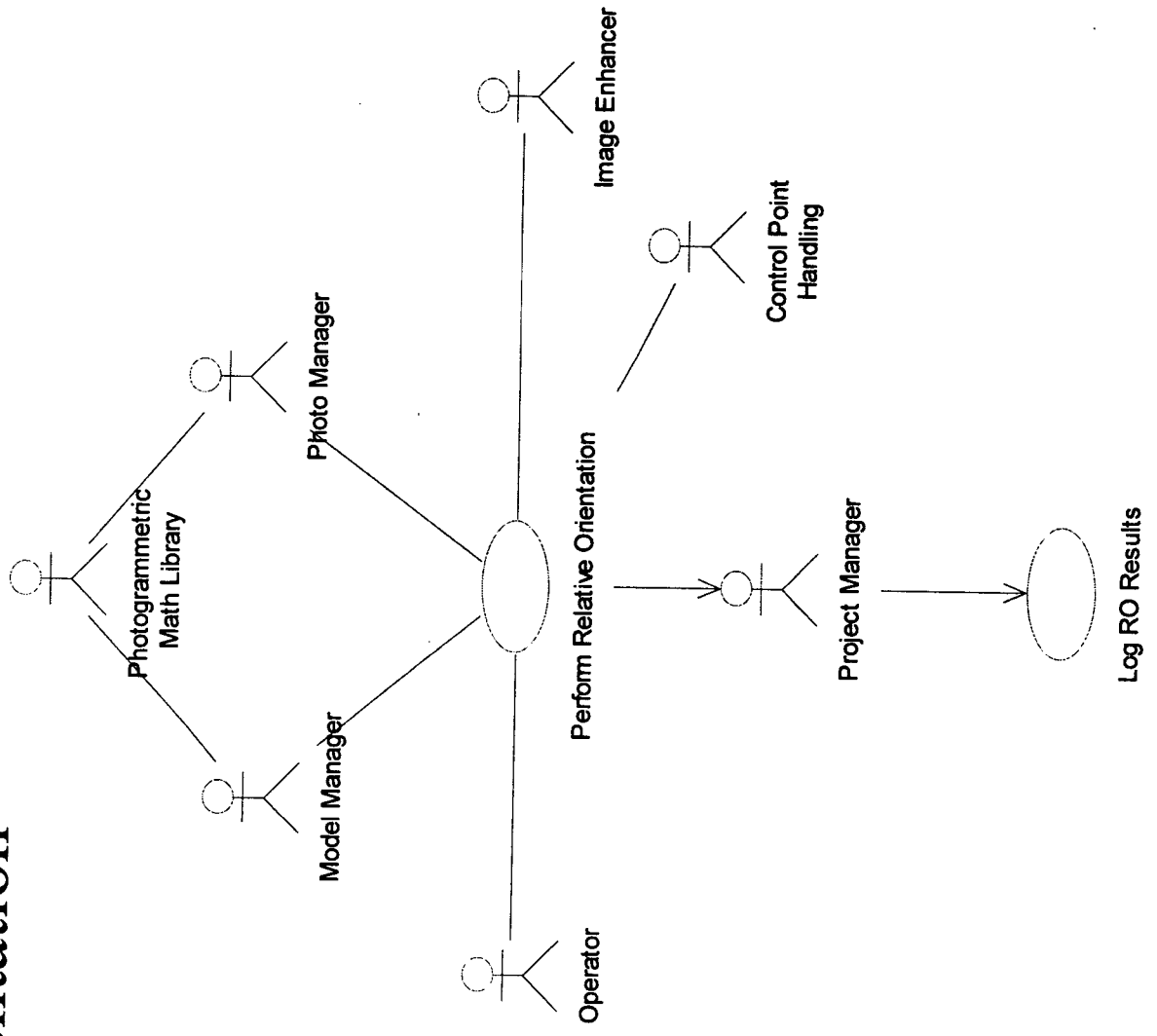
- Project Definition



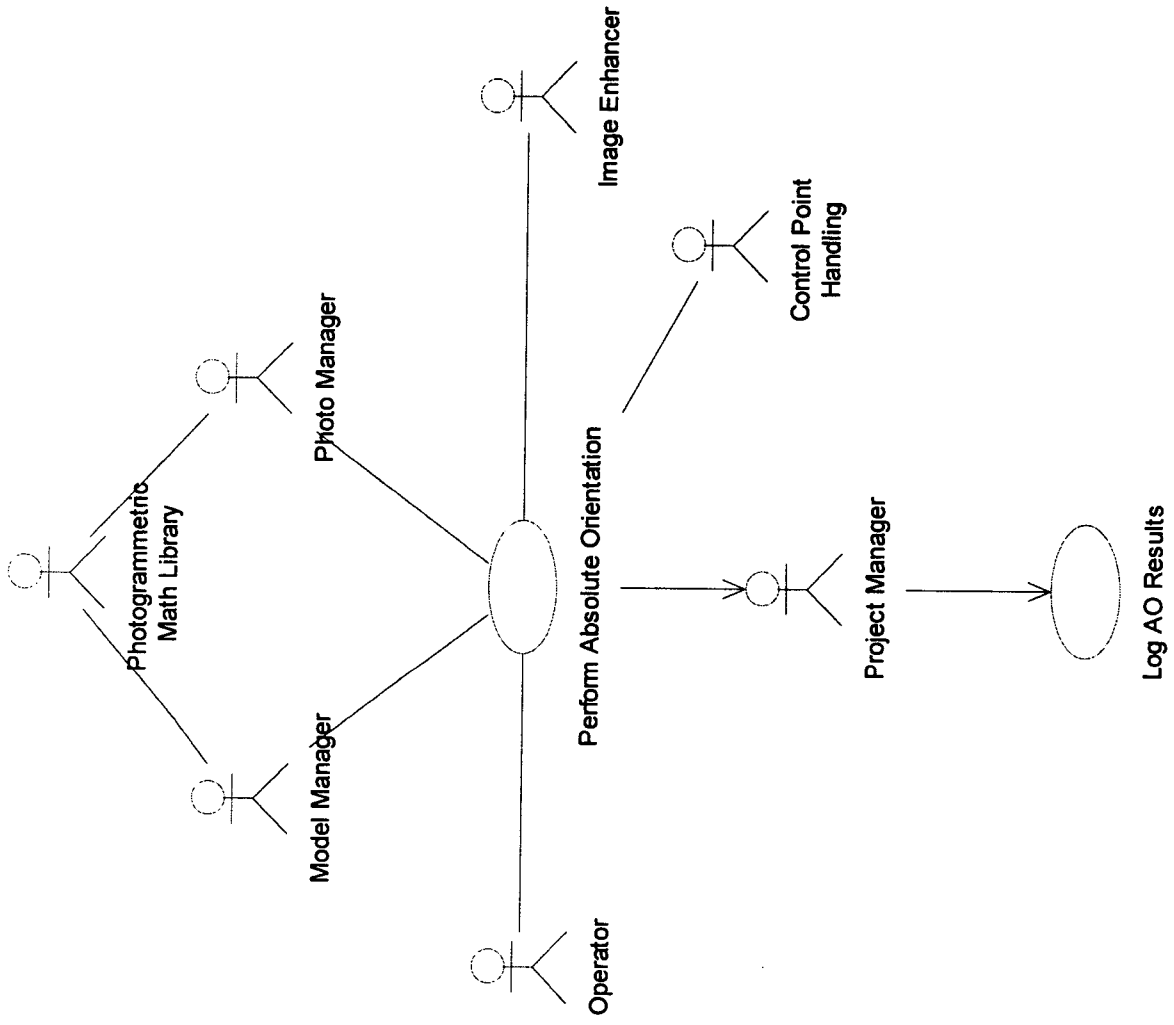
# • Interior Orientation



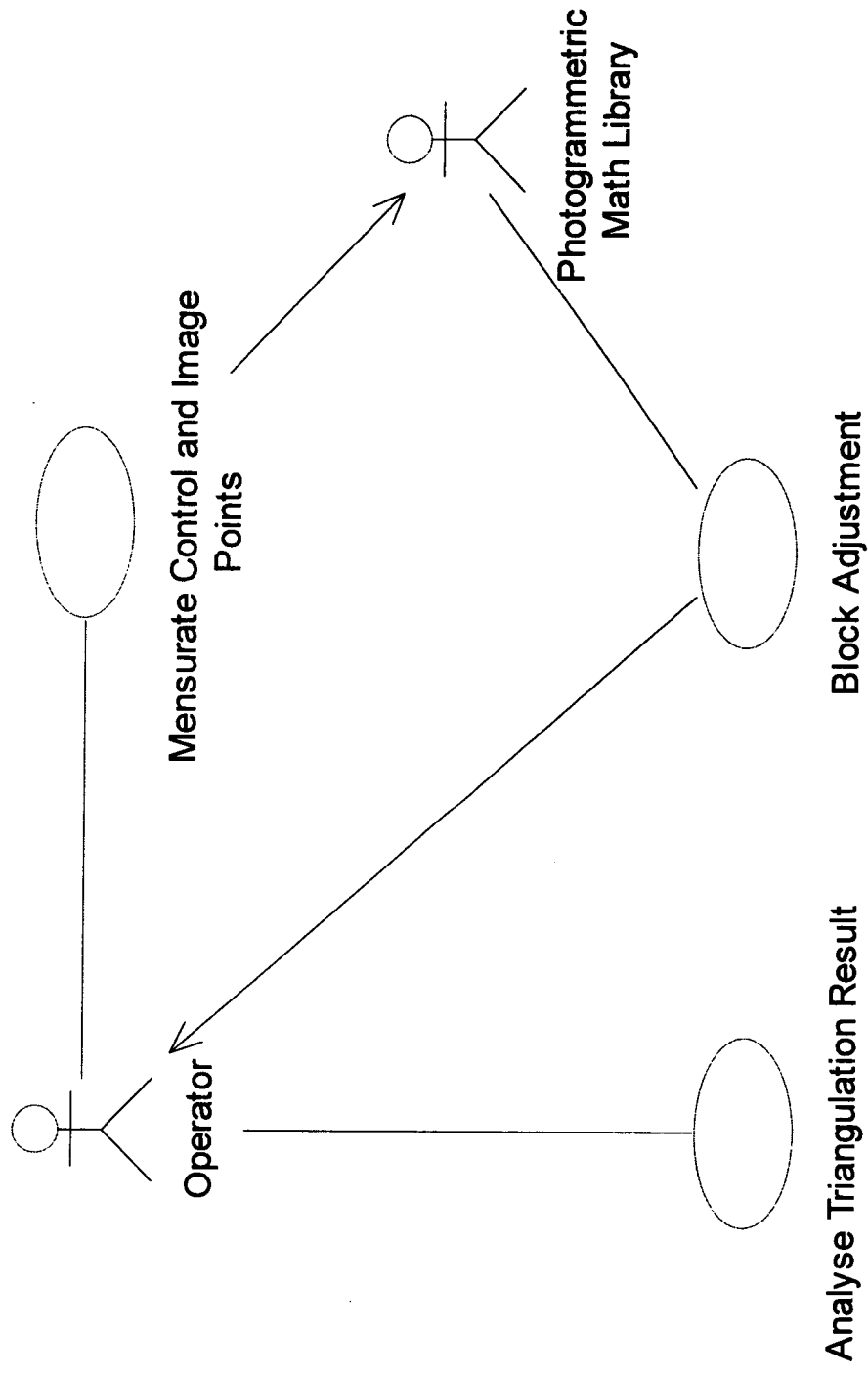
# • Relative Orientation



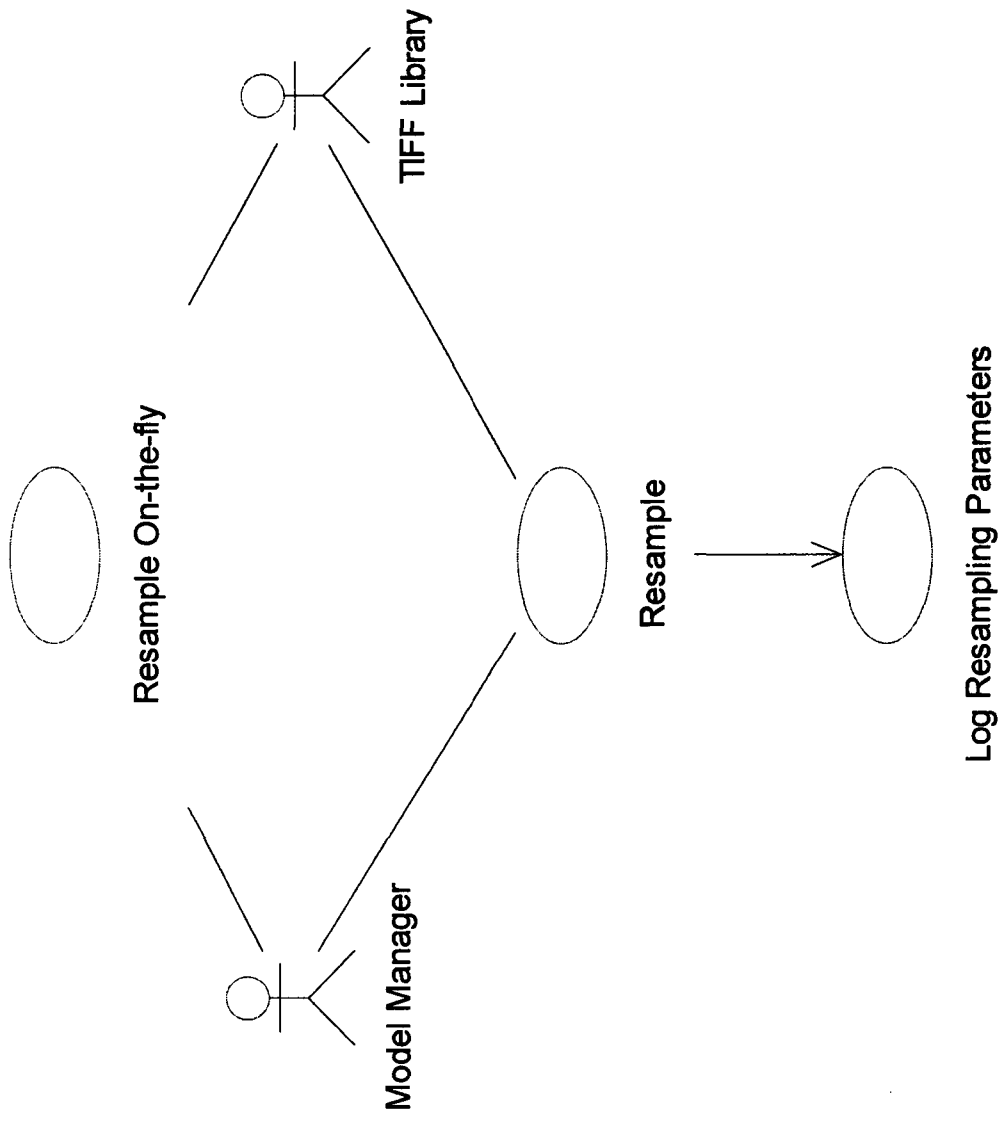
# • Absolute Orientation



# • Aerial Triangulation

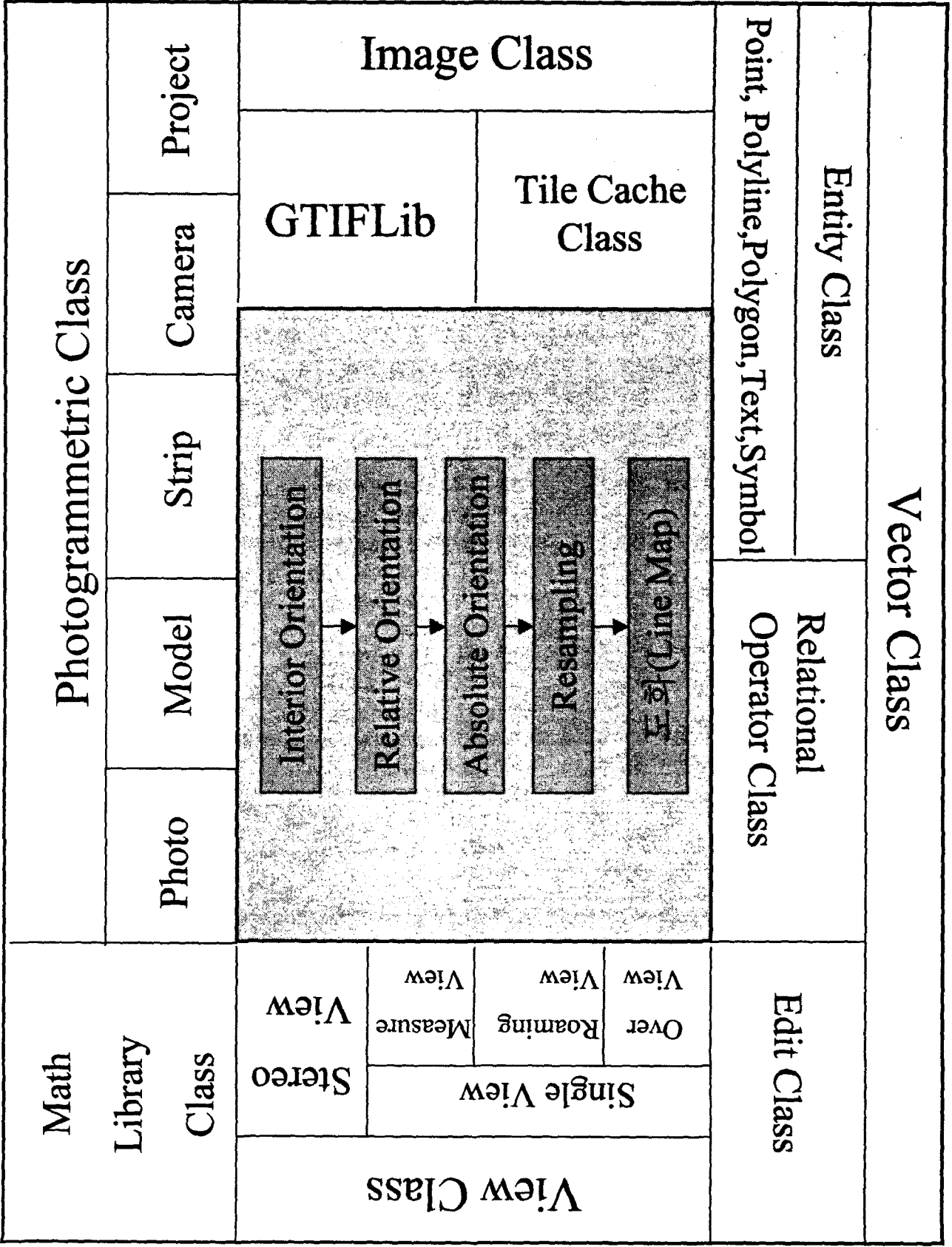


# • Epipolar Resampling

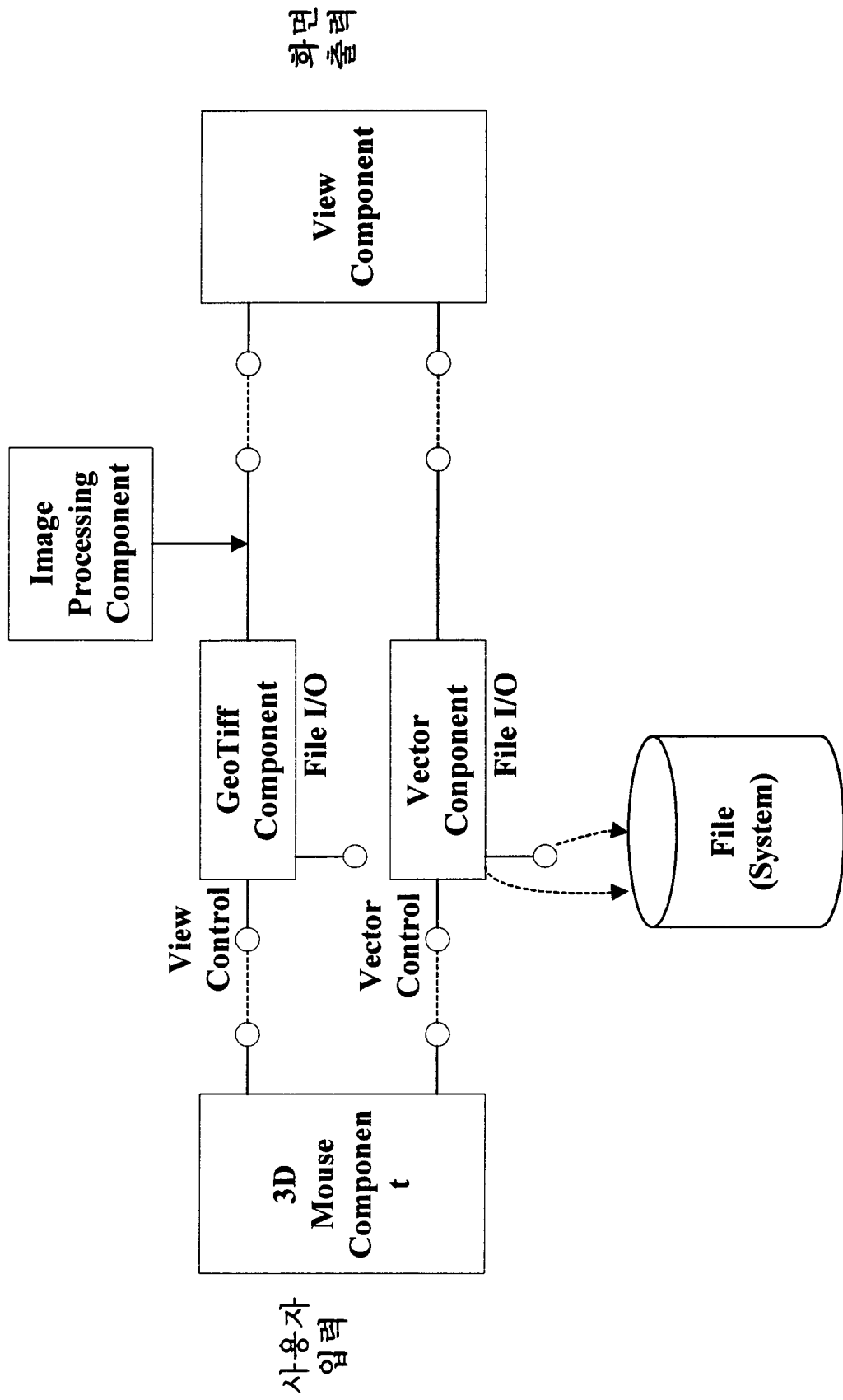


# 클래스 구성





# 컴포넌트 개발



# 사용자 환경

- 내부표정

BP - Project View Orientation Irregularity Feature Orthophoto Report Help

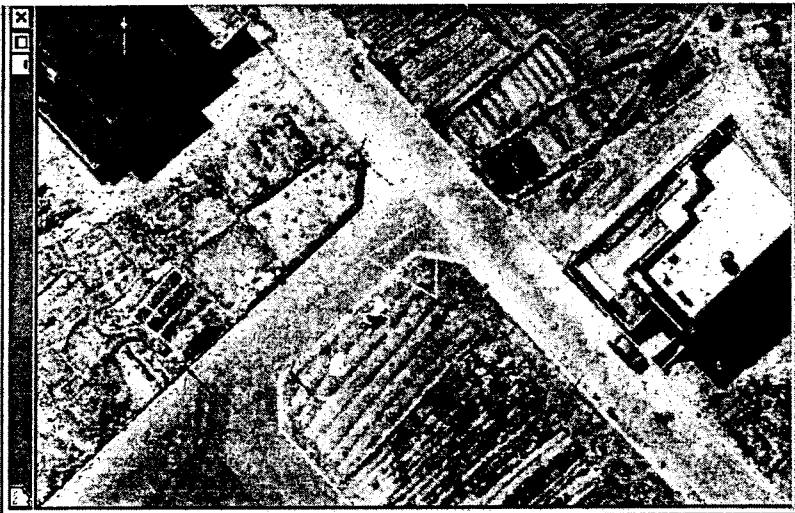
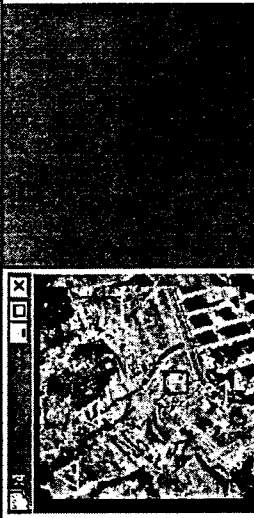


	Xp	Yp	Xi	Vi	Rk	Ry
1	105.99000	-105.99000	431.15070	441.04375	-11.62472	-3.062196
2	-105.99000	-105.99000	75.849261	4414.32705	1.624979	-8.937916
3	-105.991000	105.991000	32.647823	175.978705	-11.654103	-3.325188
4	106.000000	106.000000	4391.559710	192.526221	1.623768	-8.937379

Measurements / Results

OK Cancel

• 상호표정 / 절대표정

Project View Orientation Triangulation Feature Orthophoto Report Help

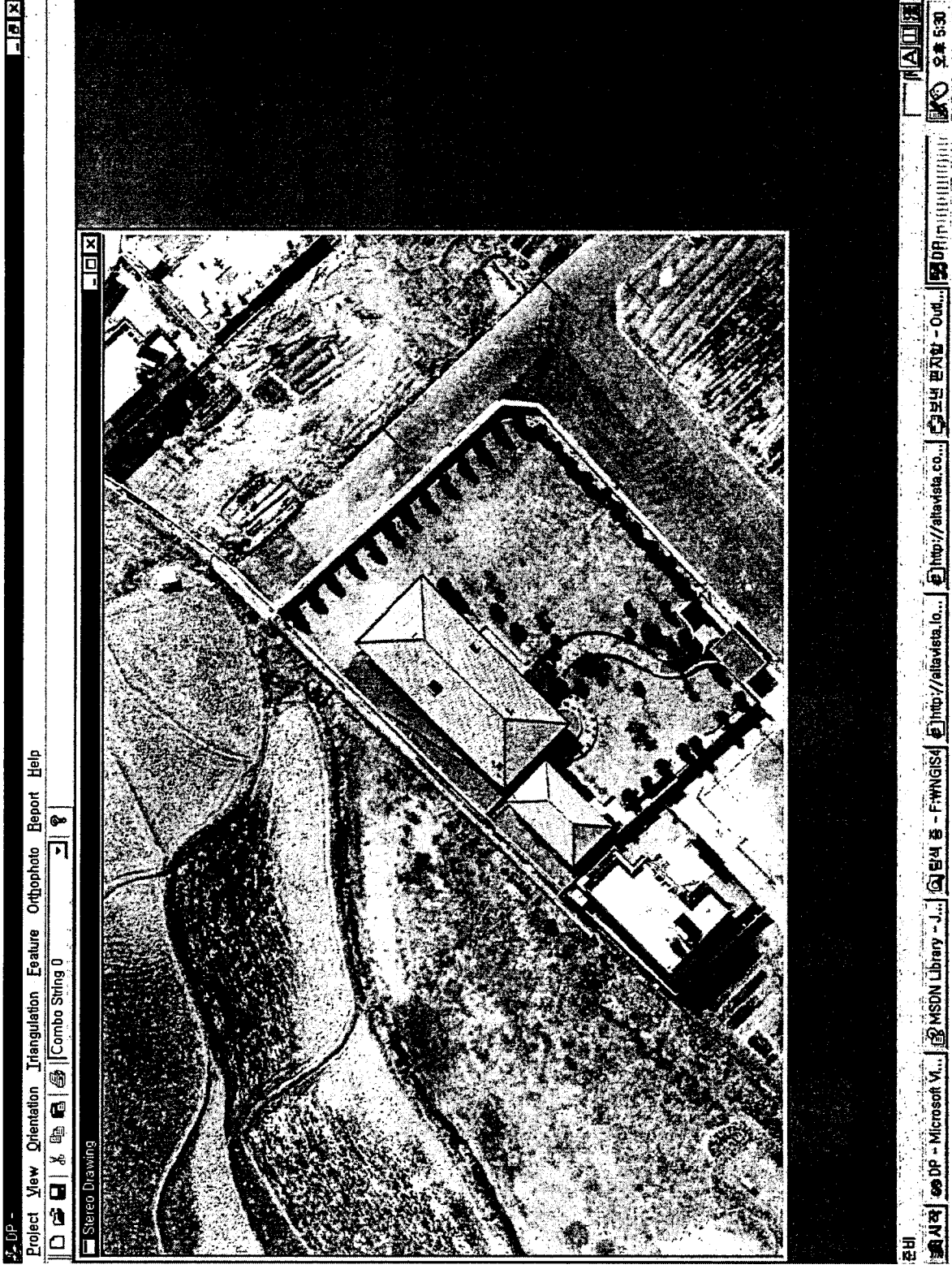





	Xp (left)	Yp (left)	Xp (right)	Yp (right)	Xm	Ym	Zm
SP01-100100	-13.369	78.679	-85.931	82.367	-12.850	75.676	5.841
SP01-110100	49.104	57.287	-21.055	60.260	48.779	56.917	1.018
SP01-100200	0.225	-8.583	-70.048	-5.368	0.224	-8.551	0.368
SP01-110200	81.251	-31.064	11.807	-28.554	82.342	-31.533	-2.155
SP01-100300	4.534	-91.332	-64.825	-87.645	4.607	-92.816	-2.476

Measurements / Results /

NUM

# • 도화(지형지물 추출)



# 결론

- 수치사진측량 시스템 개발
  - 국내 최초 상용 시스템
- UML에 의한 설계의 최적화
  - 분석/설계/구현/관리에 있어서 일관된 개발환경 조성
- 상품화 가능한 수치사진측량 관련 컴포넌트의 개발
  - 국내 Component GIS 구축에 기여