

Welcome to the
BARA Machine Vision Seminar
Sponsored by DVT



Introduction

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British Automation and Robotics Association

- Trade association for automation industry
- Aim is to promote appropriate use of automation technology in UK
- Member of International federation of Robotics (IFR)



Warwick Automation research group activities

- Future factory concepts
 - Control systems
 - Layouts
- New vehicle structural concepts
- Automated process development
- Novel automation solutions

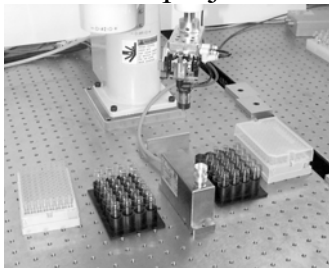


Why do we use vision?

- Quality
- Investment cost
- Flexibility



GSK project



Aims

- Improve accuracy of tests
- Reduce time taken by chemists to perform mechanical operations
- Increase throughput / chemist



Problems

- User interface
- Human intensive environment
 - Unstructured input
 - Unpredictable problems



Why use vision?

- Flexible
- Cheap
- Multiple capability



Automotive applications

- Bin picking
- Jigless manufacture
- Conveyor / robot synchronisation
- Diagnostics
- Safety?



Issues we have with vision

- Integration with robots/PLCs
 - Communications
 - Networks
 - Application interfaces
- Application programming (higher level programs)
- Lighting
- 3D – stereo



Robot football

- Concept
- Competitions
- Future



Concept



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Competitions

- UK league (3 players / team)
- International (5 players / team)
- Future International (11 players / team)

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Future

- Improve vision and separate it from strategy planning
 - Improve handling of varying lighting
 - Improve tracking to use existing knowledge
 - Speed up frame rate
 - Recognition for 2*11 players

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Future

- Improve team strategies
 - Consider position of opponents
 - Running off the ball / passing into space
- Develop better robots
 - Speed
 - Acceleration
 - Ball control



Future for UK manufacturing

- High productivity therefore highly automated
- UK as a test bed for global companies
 - P.A.G.
 - GSK
 - Etc.
- Fast adopter of new technologies / highly skilled workforce