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USES OF ROBOTICS IN CURRENT WORLD

Ms. R.RAMYA
Assistant Professor,
Department Of Computer Science,
Karur Velalar College of Arts and Science for Women, Karur.

ABSTRACT:

Computers are now a vital part of industrial automation.Robots, whether teleoperated, under supervisory control, or autonomous, have been used in a variety of applications in maintenance and repair.

The following subsections describe many of these systems, focusing primarily on applications for which working robot prototypes have been developed. Industrial robots are applied in all branches of the industries.

Their use is still the largest in the manufacturing of motor vehicles industry but other industry branches record increase of industrial robot implementation. Information technology development has a big influence on changes in robotics that lead to the new functional solutions and the robot capabilities. Robots are widely used in variety of fields.

INDUSRIAL ROBOTS:

Operations that are used for support machines in metal product industry can be classified:

1. Moving workpieces from conveyors and positioning in machine for processing,
2. Removing workpieces after processing from machine and leaving to prepared area,
3. Change and lay out tools etc.

Cost effectives of the industrial robots in machine support is very important, where robots are synchronised in activities with machines means one robot for various activates as tool changing or workpiece positioning.

profitability. Another possibility for solving economical problems would be to use same industrial robots in supporting more machines.

Handling different kind of work pieces would require flexibilities of end-effectors (flexibility with regard to variable shapes of work pieces). The solution would be application of the universal endeffectors or systems for rapid replacement. In modern plants machining is performed on machining cells. Machining cell is higher automated level of numerical controlled machine in terms of changing of tools, work pieces and accessories.

Typical machining cell is consisted by machine tool, transport system for material delivery and shipping and robot for support. High automation level of machining cell demands programming of industrial robots to support flexibility of systems.

By robot mechanics is demanded to meet functionality by electing end-effectors for variable shapes of workpieces. Control of robot has to be synchronised with control of machine tool, as with control of transport system. It has to be satisfied compatibility condition with environment which is solved by integrated control system. Control system has to satisfied high repeatability which is constant demand.

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From standpoint of geometry it is necessary that robot has six degrees of freedom and possibility to change the end-effectors for gripping workpieces showed on Figure 4, which can significantly increase robot velocity in machining cell.

HIGHWAYS:

In the developed world, highways are a critical component of the transportation network.

The volume of traffic on the roadways has been steadily increasing for many years as society becomes
more and more mobile.

However, the funding to maintain these roadways has not been keeping pace with the traffic volume.

The result is deteriorating roadways that cannot be adequately maintained.

Conventional techniques to road repair lead to traffic congestion, delays, and dangers for the workers
and the motorists. Robotic solutions to highway maintenance applications are attractive due to their potential for increasing the safety of the highway worker, reducing delays in traffic flow, increasing productivity, reducing labor costs, and increasing quality of the repairs.

Application areas to which robotics can be applied in this area include (Ravani and West, 1991):

- Highway integrity management (crack sealing, pothole repair)
- Highway marking management (pavement marker replacement, paint re-striping)
- Highway debris management (litter bag pickup, on road refuse collection, hazardous spill cleanup, snow removal)
- Highway signing management (sign and guide marker washing, roadway advisory)
- Highway landscaping management (vegetation control, irrigation control)
- Highway work zone management (automatic warning system, lightweight movable barriers, automatic cone placement and retrieval)

AIRCRAFT SERVICING:

Aircraft servicing applications may benefit from robotic maintenance in several areas. The size of modern multi-engine jets makes inspection and coating removal and application particularly attractive in terms of improving quality and efficiency. As examples, Siegel, Kaufman, & Alberts (1993) describe concepts for automating skin inspections, and Birch & Trego (1995) and Baker *et al*. (1996)

Describe stripping and painting concepts. Automated stripping and painting systems are already in place at a few U.S. Air Force bases. A robotic assistant for re-arming tactical fighter aircraft is being developed at the Oak Ridge National Laboratory for the U.S. Air Force.

CONCLUSION:

New technology may be able to help answer the cries to reduce casualties resulting from friendly fire and collateral damage, as well as assist the military in performing urban operations.

Industrial robots as other modern manufacturing system are advanced automation system that utilize computers as an integral of theit control.Computers are now a vital part of industrial automation.

So from the above manner the robotics are used in current world based on the technology.

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