Military Robotics
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1 History on the use of Robotics in the Military

Militaristic use of robots can be traced back all the way back to WWII. The Germans used a radio controlled demolition vehicle called Goliath tracked mines . To the Allied forces, they were known as beetle tanks. More recently, the CIA and US military have used the MQ-1 Predator drone in gathering intelligence from the air.

Today, the US military invests a lot of money into research in automated robotic systems. This research goes into many fields including automated turrets, unmanned plains, fully autonomous vehicles, and even artillery shells.

2 Modern day Examples in different fields of use

2.1 Gathering Intelligence

The first field is the gathering of intelligence. Dragon Runner is a small, backpack sized scout robot that is used for Gathering intelligence on areas that are inaccessible due to danger or means of entry by human solders. It is currently still in development and may not see real action in the near future.

Another example is the XM1216 Small Unmanned Ground Vehicle (SUGV), seen in Figure 1, designed to be a recognizance robot for ground troops in urban warfare. It is designed to be lightweight and easy to carry.

Figure 1: The SUGV entering a building while marines stay safely outside.

A much larger example of an intelligence-gathering vehicle is the heavily armored SYRANO that was designed to collect information in combat zones. It is designed to be especially useful in urban environments.

2.2 Transportation of Materials

The second field is transportation of materials. The first example is the 285 lb iRobot Warrior. It is a land-based robot that can carry up to 500 lbs of tactical gear, ammunition, weaponry, and medical equipment. It can even evacuate an injured solder.

A second example is the high-tech MULE transport system, shown in Figure 2, that is able to overcome almost any obstacle, including 1-meter wide gaps. It has visual censors connected to a main processor that is intelligent enough to calculate a path around any given obstacle. It is even able to haul 1900 to 2400 pounds of equipment.

A more interesting transportation vehicle is the BigDog, seen in Figure 2. It is a robot that is shaper like a dog. It stands 2.5 feet tall, is 3 feet long, weighs 240lbs, and is about the size of a small mule. It was designed to transport materials regardless of the terrain. Its censors are so sensitive that it is able to correct itself if it slips on ice without falling.

Figure 2: The MULE being tested by a operator via remote control

2.3 Automated weaponry

The third field is automated weaponry. This field includes automated turrets and various firing mechanisms. First, The Gladiator TUGV is an unmanned sentinel vehicle that is used by the US Marine Corps. it is used to defend areas using an automated turret system capable of utilizing virtually any hand weapon or Machine Gun through the Thales SWARM remote weapon station.

Another example is the Foster-Miller TALON, seen in Figure 3. It is somewhat like the Guardian but much smaller weighing less than 100lbs. Instead of the SWORM system, it uses the SWORDS system. It transmits a picture in color, black and white, infrared, and night vision to a screen on the operators control panel. It is so versatile and well known that it was used in Ground Zero after the September 11th attacks.

Figure 3: The TALON equipped with a small machine gun.

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