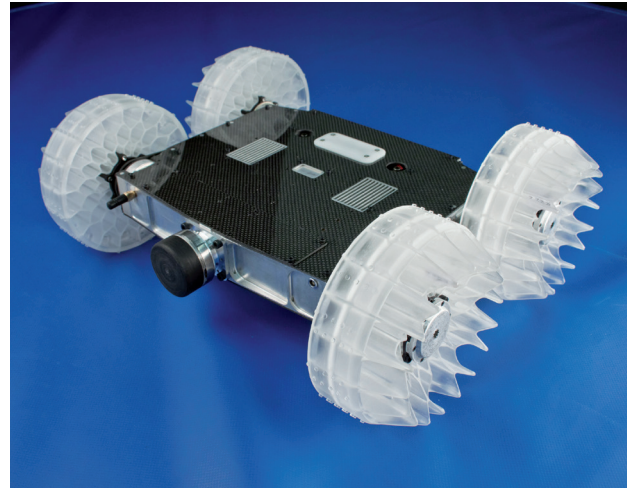


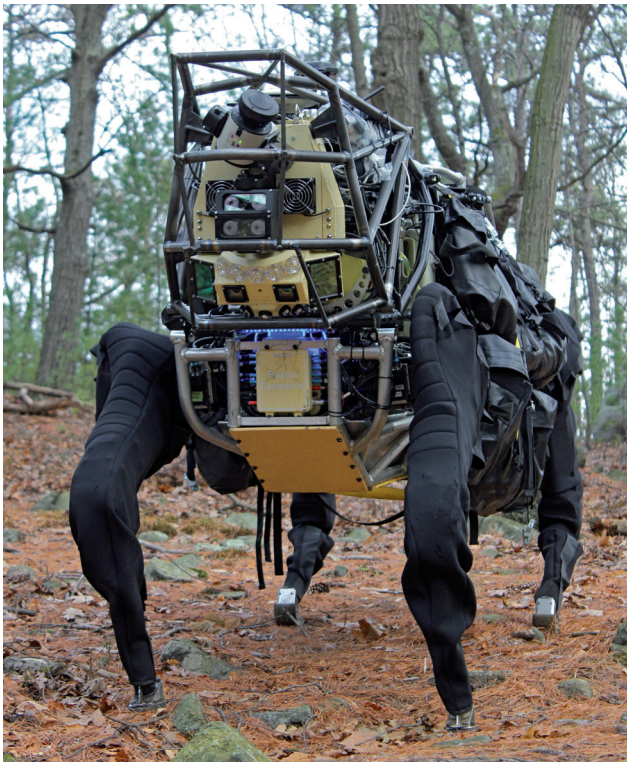
# ANIMAL-LIKE ROBOTS



**BigDog** is a dynamically stable quadruped robot created by the NASA Jet Propulsion Laboratory. BigDog weighs 110 kg and is about the size of a small mule. It is capable of traversing difficult **terrain**, running at 4 miles per hour carrying about 150 kg and climbing a 35 degree **incline**. Locomotion is controlled by an onboard computer that receives input from the robot's various sensors. BigDog is **funded** by the Defense Advanced Research Projects Agency (DARPA) in the hopes that it will be able to serve as a robotic **pack mule** to accompany soldiers in terrain

too **rough** for conventional vehicles. Instead of wheels, BigDog uses four legs for movement, allowing it to move across surfaces that would **defeat** wheels. The legs contain a variety of sensors, including joint position and ground contact. BigDog also **features** a laser gyroscope and a stereo vision system.

The **Legged Squad Support System (LS3)** is a DARPA project for a legged robot which could function autonomously as a **packhorse** for a **squad** of soldiers. Like BigDog, its quadruped predecessor, the LS3 is projected for military use, with the ability to operate in hot, cold, wet and dirty environments. The LS3 is a dynamic robot designed to go anywhere Soldiers and Marines go on foot. Each LS3 will carry up to 200 kg of **gear** and enough fuel for missions covering 20 miles and lasting 24 hours. LS3 will not need a driver, because it will automatically follow a leader using computer vision or travel to designated locations using sensing and GPS. Robotics company Boston Dynamics created a 5 kg-robot called the **Sand Flea** that can jump



about 10 m in the air and is equipped with an infrared camera. The robot uses gyro stabilization to stay level during flight, to provide a clear view from the onboard camera and to **ensure** a smooth **landing**. The Sand Flea was used in Afghanistan to support troops by allowing areas to be investigated before any soldiers set foot on the ground. Afghanistan is becoming a **hotbed** of robotic soldiering, as thousands have already been **deployed** there. The numbers are even higher when one considers the **unmanned** aerial vehicles also used. **Land-bound** robots do things like **bomb disposal** and reconnaissance, reducing the risk to the troops in the field.

**1**  **Complete the following sentences about BigDog.**

- BigDog is the size of a .....
- It weighs .....
- It is able to run at .....
- It can carry about .....
- It can climb a .....
- Locomotion is controlled by .....
- The computer receives inputs from .....
- Its function is to .....
- The legs contain a .....
- BigDog also has a laser .....

bomb disposal: *disinnesco di ordigni esplosivi*  
 defeat: *(qui) far fallire*  
 to deploy:  *schierare*  
 to ensure: *assicurare*  
 to feature: *(qui) presentare, avere*  
 to fund: *finanziare*  
 gear: *equipaggiamento*  
 hotbed: *focolaio*  
 incline: *pendenza*  
 landing: *atterraggio*  
 land-bound: *terrestre*  
 packhorse: *cavallo da soma*  
 packmule: *mulo*  
 rough: *accidentato*  
 squad: *plotone, squadra*  
 terrain: *terreno*  
 unmanned: *senza equipaggio*

**2**  **Find the beginning of these sentences about the LS3.**

- ..... functions autonomously as a packhorse.
- ..... for military use
- ..... environments.
- ..... Soldiers and Marines go on foot.
- ..... 200 kg of gear.
- ..... missions covering 20 miles.
- ..... using computer vision.
- ..... using sensing and GPS.

**3**  **PAIR WORK. Ask and answer these questions about the Sand Flea.**

- How much does a sand flea weigh?
- How many metres can it jump?
- What is it equipped with?
- What does it use gyro stabilization for?
- Where was it used?
- What was it used for?