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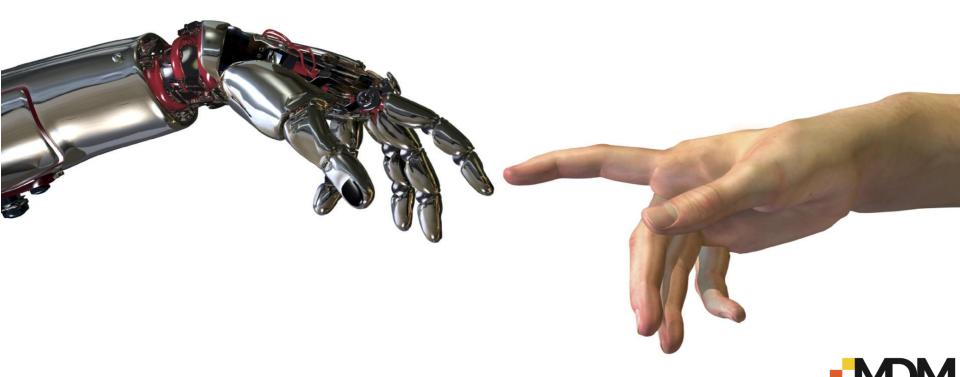
Explosive Ordinance Disposal (EOD) Robots

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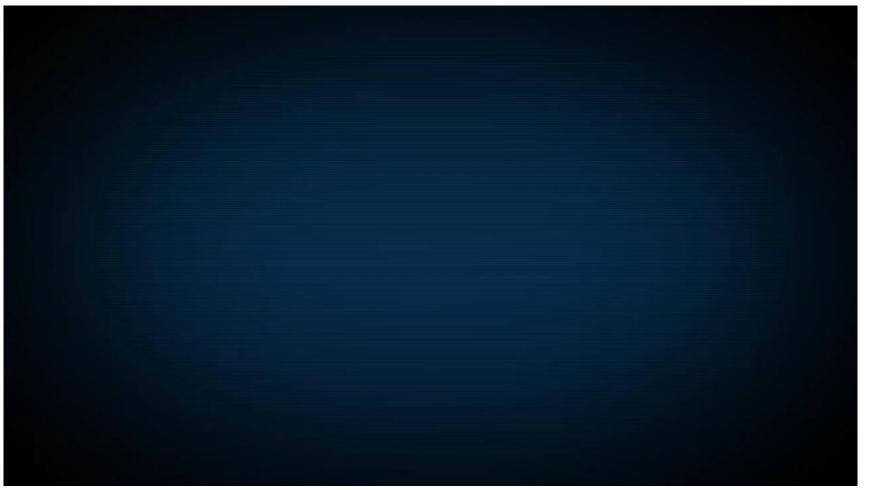
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Recall: Improvised Explosive Devices



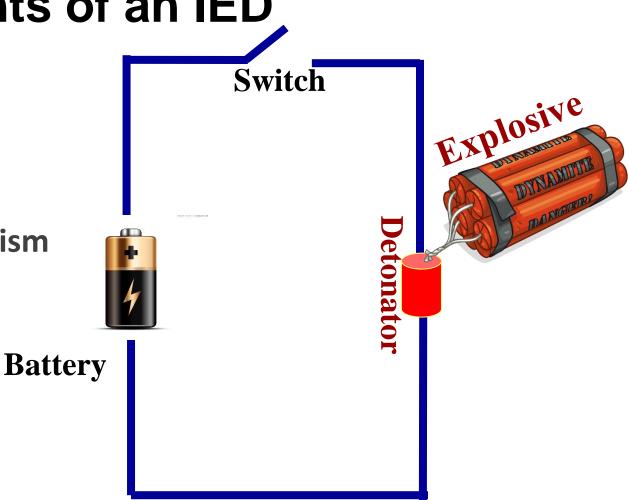




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Components of an IED

- Explosive
- Detonator
- Power Source (Battery)
- Initiation Mechanism (Switch)



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Initiation Mechanism

- Types
- Anti-handling
- Delay
- Ambient
- Command

- **Bacipanie te fie**mer
- Shoke as lease
- Sound Steiner
- **Pohotechwire**
- Proximity **That**mahone

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- Humidity
- trightal
- Expanding material





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Typical IED Configurations

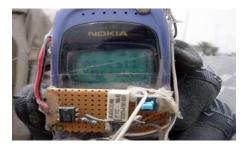
• There aren't any







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History of Bomb Disposal Robots

- The father of bomb disposal robots
 - Peter Miller (1972)



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Today's typical EOD Robot

 Northrop Grumman's Remotec ANDROS F6 robot



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Basic bomb squad activities

- Identify threat
- Examine threat
- Plan mitigation
- Carry out mitigation



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What to look for in Indentifying the Threat

- Saw dust, Brick dust, Wood chips
- Recently disturbed ground
- Greasy Paper Wrappings
- Objects and items out of place
- Tin foil
- window/door/drawers ajar
- Fresh plaster/Cement
- Loose Electric Fittings
- Fish-line, dirty ropes, electric wire
- Cut vegetation
- Military containers
- Concentrated foot prints
- Scratched or new paint





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Projected Water Disruptors

- Utilise a water projectile shaped charge to destroy IEDs by "disrupting" non-explosive components.
- Come in many formats with application decided by the bomb disposal technician.
 - Pigstick, cutter, breaker, etc.



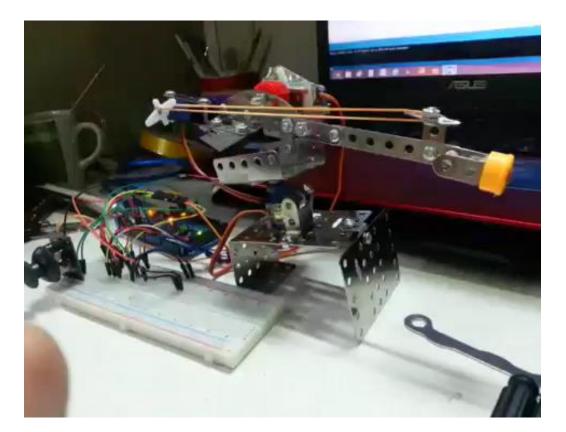




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Making a disruptor

- Elastic band takes the place of a water jet and charge.
- Arduino controlled



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Final Exercise Preview

- There exists a building surrounded by IEDs
- The building has a single point of access that may be blocked and booby trapped with IEDs
- Inside the building is a container of plutonium dioxide
- Mission:
 - Find and neutralize IEDs blocking access
 - Sketch/map interior of building
 - Find plutonium dioxide and sketch its configuration





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