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2.1.2 Phase-based approach

### ***2.2 Laser scanner types***

2.2.1 Time-based types

2.2.2 Phase-based types

### ***2.3 Examples of laser scanners***

2.3.1 Time-based laser scanners

2.3.2 Phase-based laser scanners

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3.1.2 Scanning resolution

### ***3.2 Precision***

3.2.1 Distance error

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### ***3.3 Survey distance***

3.3.1 Reflective properties of rock surfaces

3.3.2 Laser energy, laser beam divergence

### ***3.4 Specifications of laser scanners***

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## **4 Operational issues**

### **4.1 Registration**

4.1.1 Absolute registration

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### **4.2 Field-of-View**

### **4.3 Merging of multiple scans**

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### **4.5 Combination with photographic (colour) information**

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## **5 Applications**

### **5.1 Rapid face mapping and documentation**

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### **5.3 *Underground (tunnel) survey***

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## **6 Current developments**

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### **6.2 *Software***

6.2.1 Generic point cloud handling software

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## **7 Research directions**

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