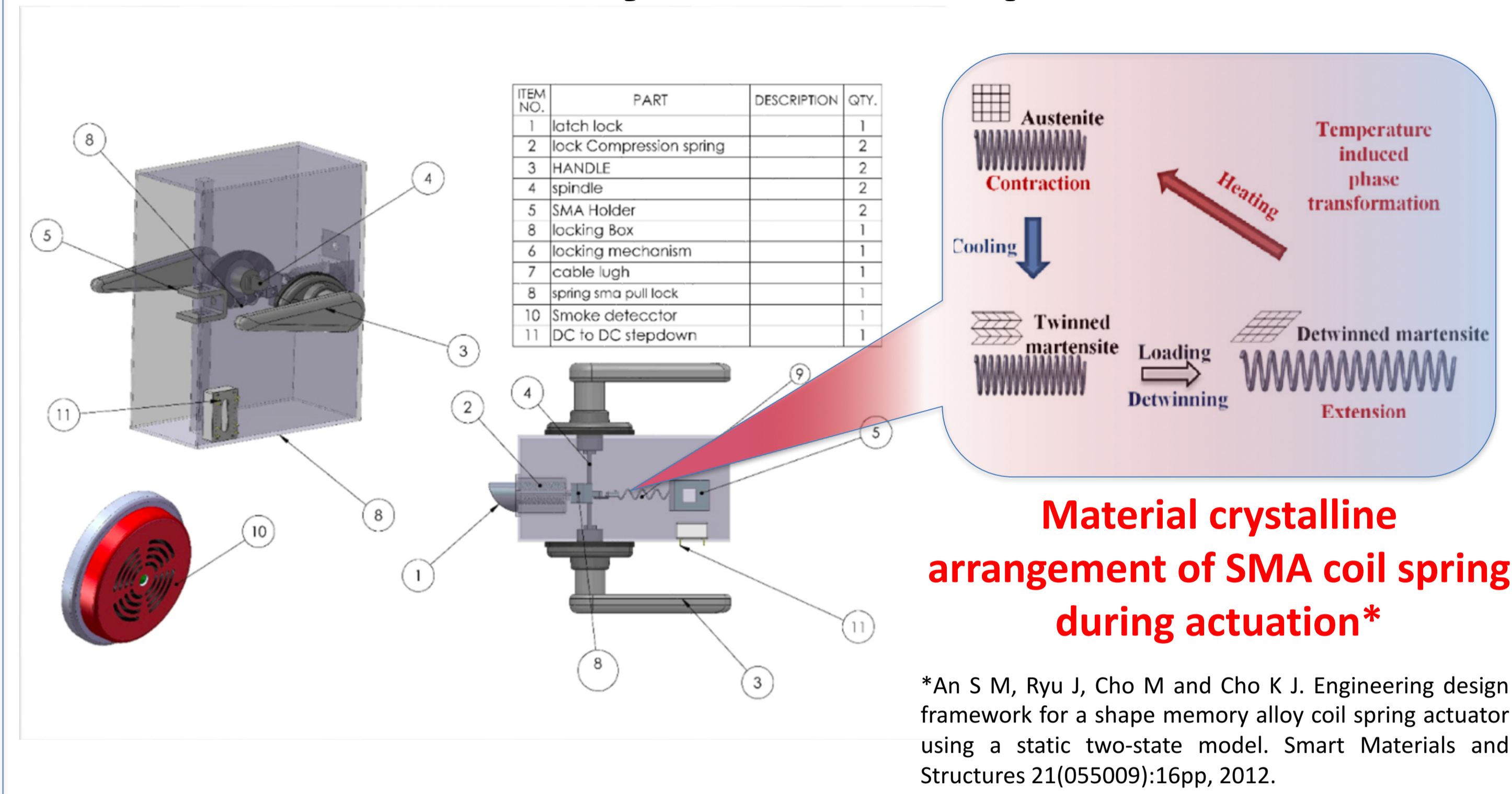


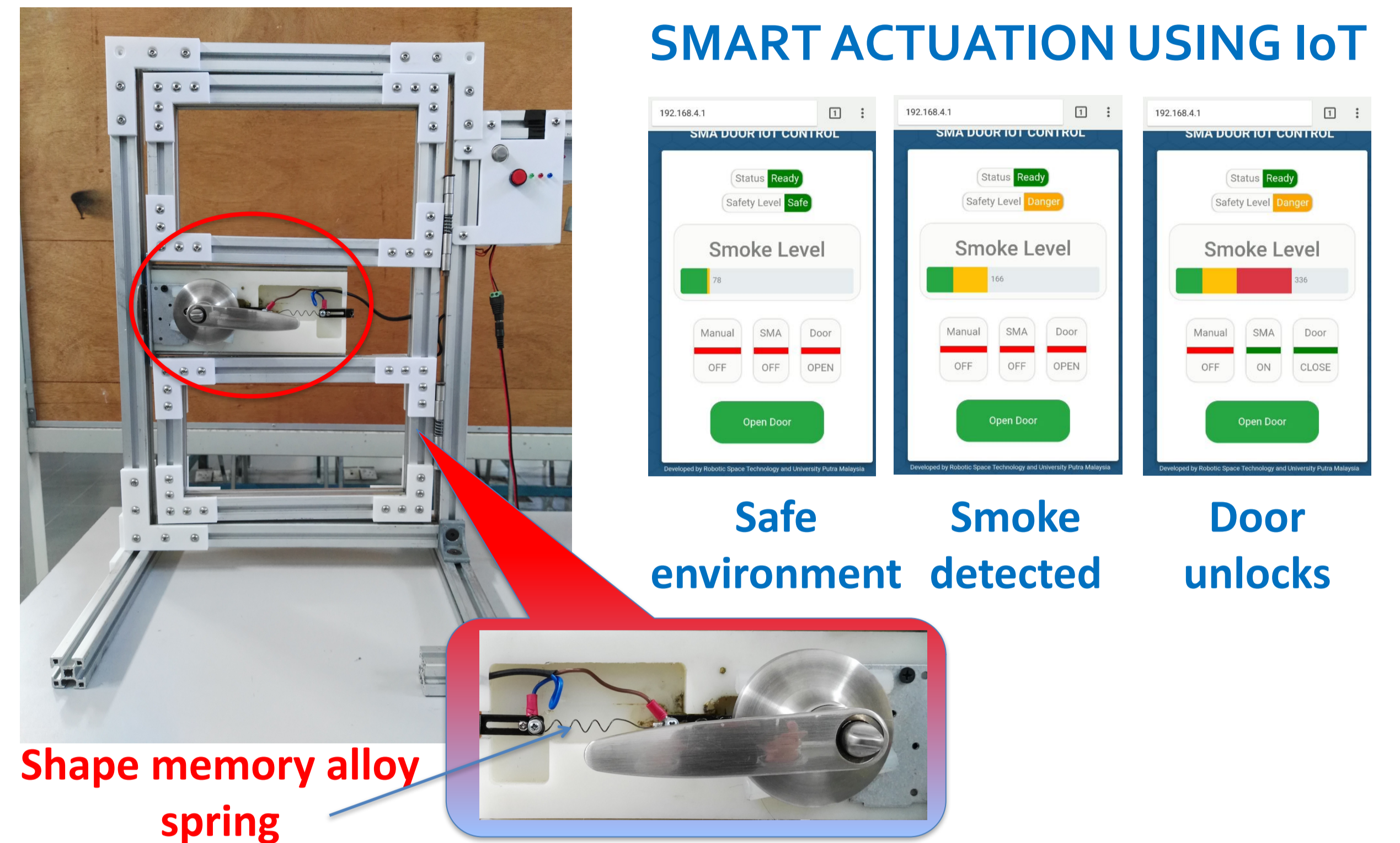
A DOOR LOCK SYSTEM

IPR (PATENT/ID/C) NO. UI 2017701918

Door Lock System Components



Door Lock System Prototype



INTRODUCTION OF TECHNOLOGY

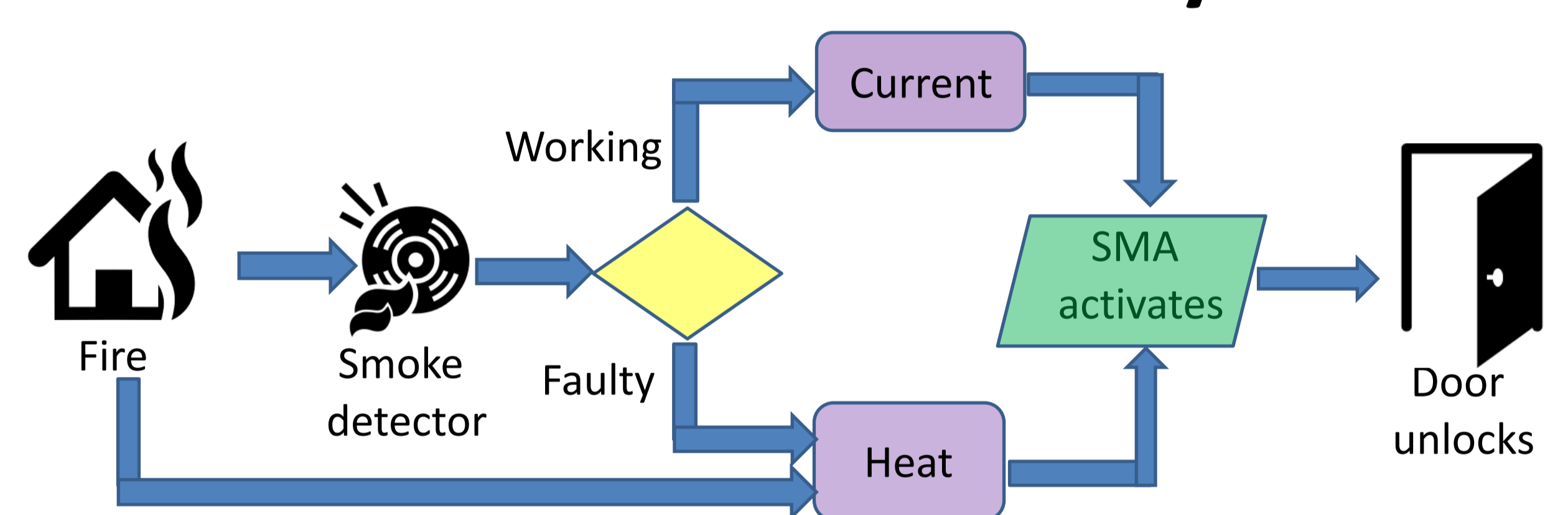
On 14th September 2017, the nation woke up to a devastating news where a fire broke out at Pusat Tahfiz Darul Quran Ittifaqiyah that took away the lives of 21 children and 2 of their teachers. This was not the first case of death due to fire in Malaysia. Thousands of fire occurred involving building fire causing many deaths and injuries according to the statistics by the Fire and Rescue Department of Malaysia (FRDM)[†]. Installation of locks on security grilles for residential windows and doors is one of the main restraint for victims to escape in an emergency. A new innovative lock has been designed for door to automatically open during fire.

[†]FRDM. (2014). Statistik Punca Kebakaran Tahun 2013. Fire and Rescue Department of Malaysia.

INVENTION

The Door Lock System automatically senses heat from fire or actuated by current from the smoke detector due to the shape memory alloy (SMA) spring that acts as both actuator and sensor for the door locking mechanism. SMA is a smart material that contracts when heated above its activation temperature. SMA also has resistance properties that enables it to be actuated by joule heating. When electric current flows through the wire, it can generate heat to cause the phase transformation. This device is a green innovation as it doesn't require added power supply. Instead the heat from the environment and also existing power supply from the smoke detector can be used to actuate the door lock system.

Flowchart of Door Lock System



ADVANTAGES

The installation of the Door Lock System in residential property has many advantages such as

- Increased safety
- Improved reliability
- Low cost
- Easy installation
- Green innovation

MARKET POTENTIAL

Currently there exist a significant problem related to fire safety in Malaysia. Thus, this invention will be able to fill a critical market need to improve safety in both residential and commercial buildings by integrating with existing fire safety system.

Consumer/End User

- Residential home
- Commercial buildings

Industry

- Lock manufacturer
- Safety equipment supplier
- Building and construction



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