AR Drone Diagnosis project

Lucas team

Sprint 3 Revue

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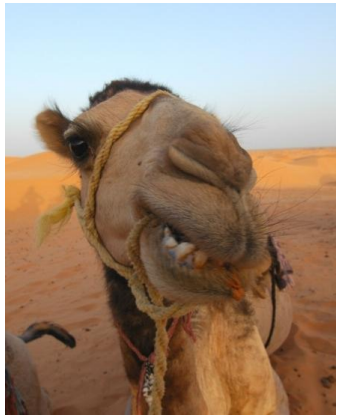
The team



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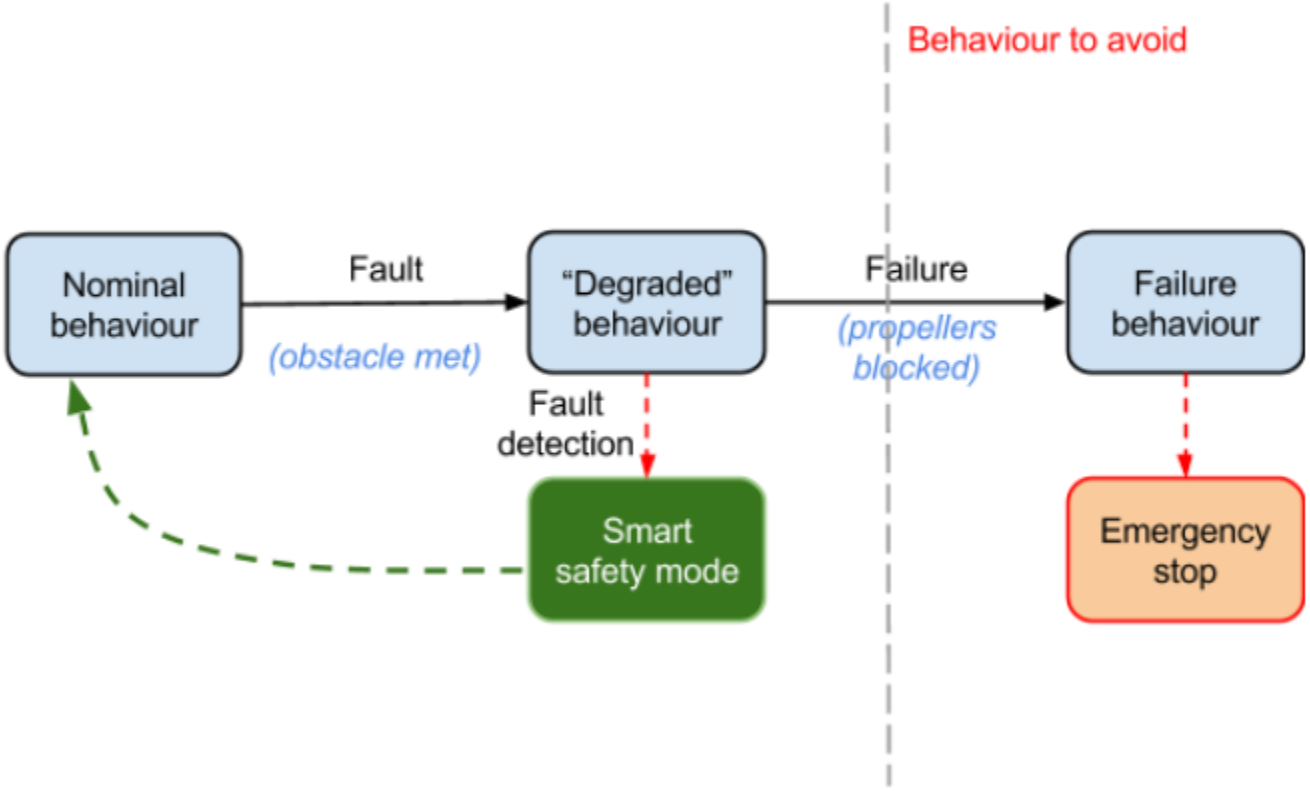
Project objectives

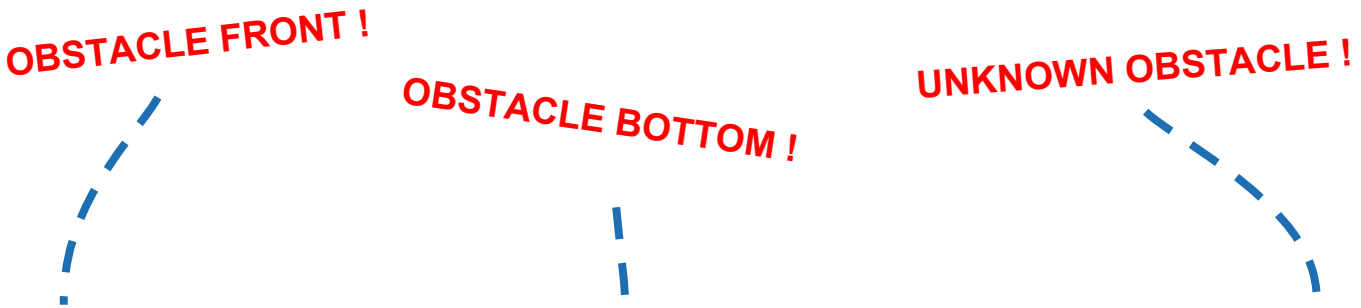
In-flight diagnosis (No hardware)



Results : What does the app do ?

Detection and diagnosis :

⇒ Locates the obstacles met

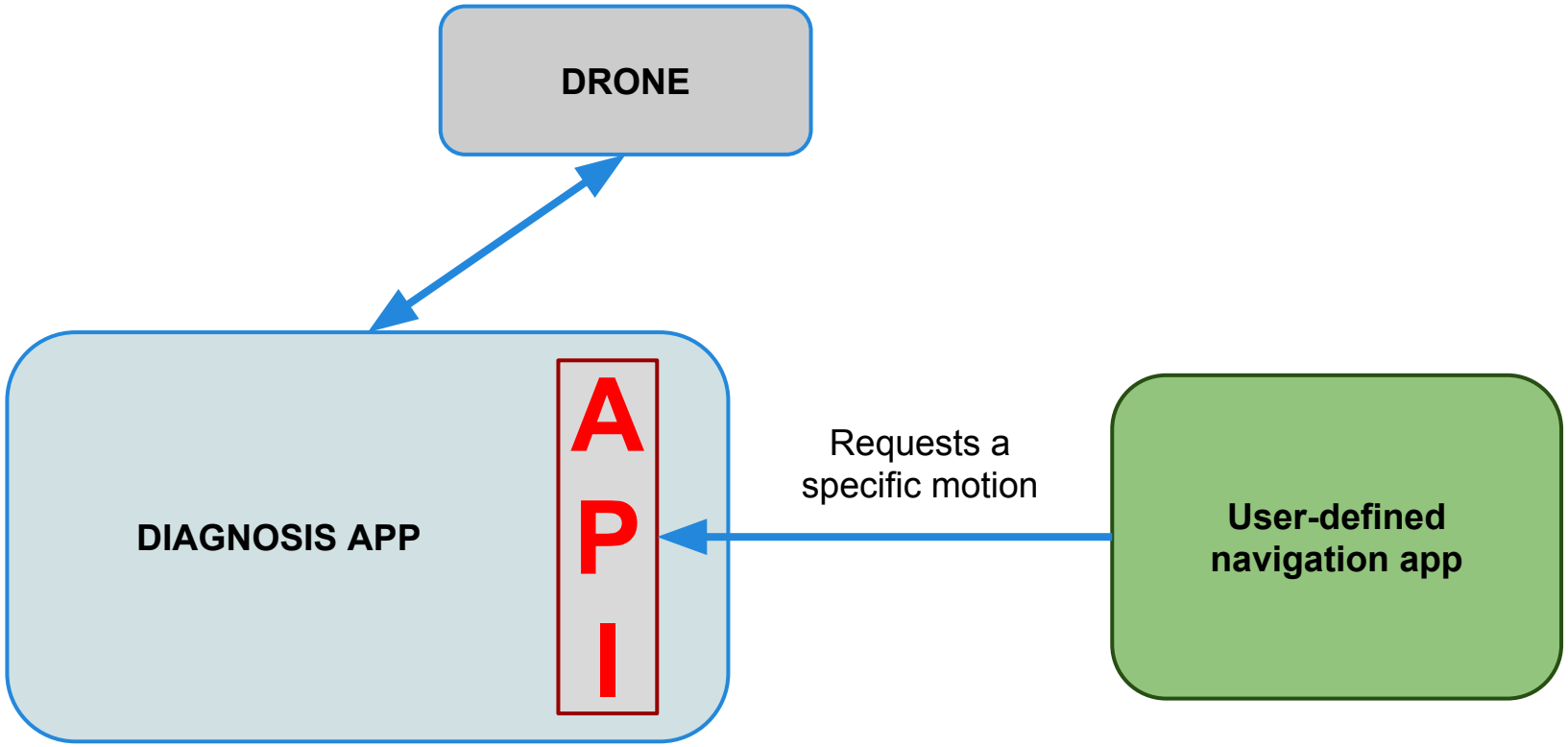


Reaction - Smart Safety Mode :

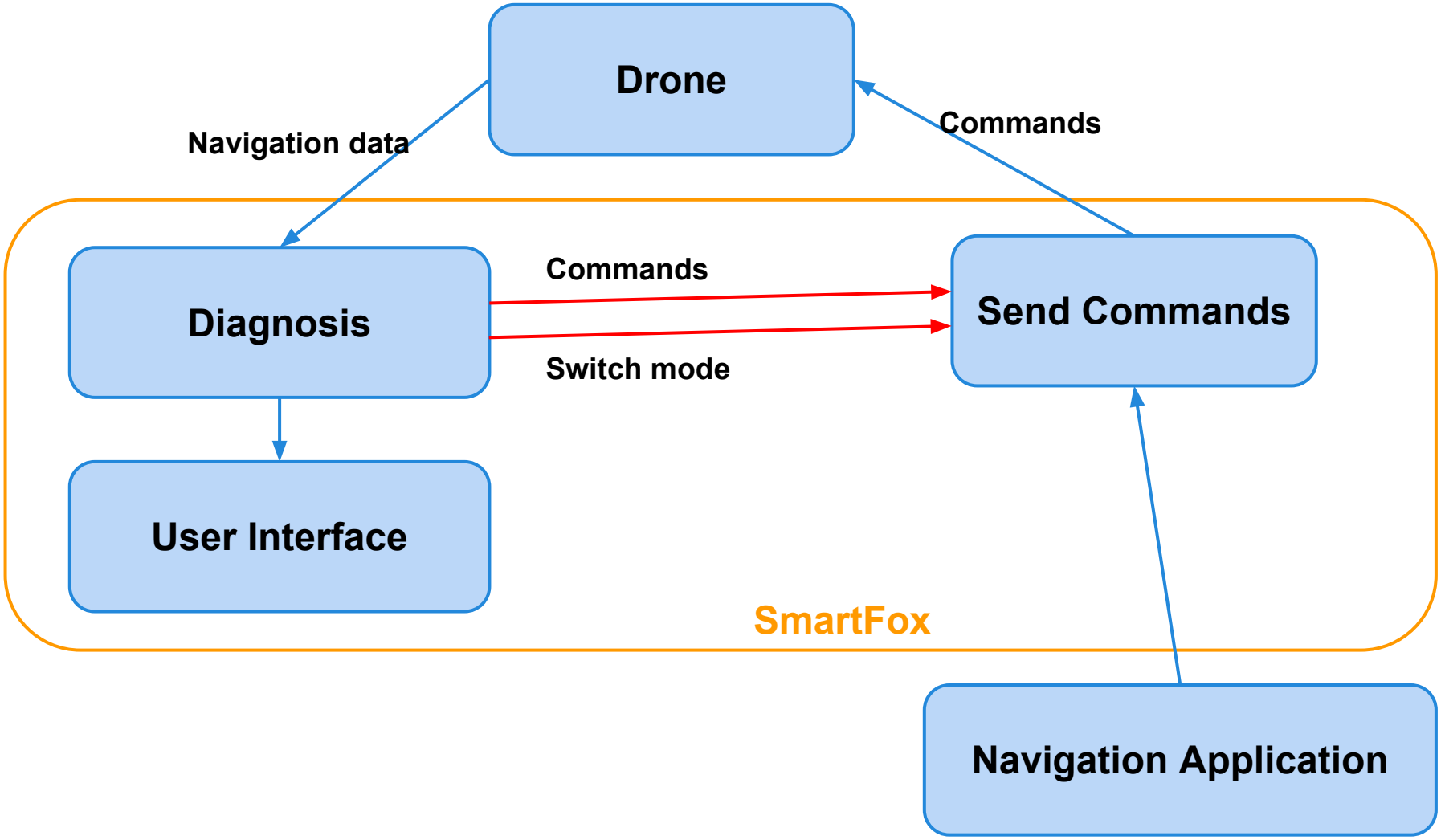
⇒ Takes control to get out from the dangerous situation

Results : What does the app do ?

API :



Functionalities, technical description



User Interface

- 3 pages : configure, diagnosis, debug
- display different messages and indicators about the drone

Demo

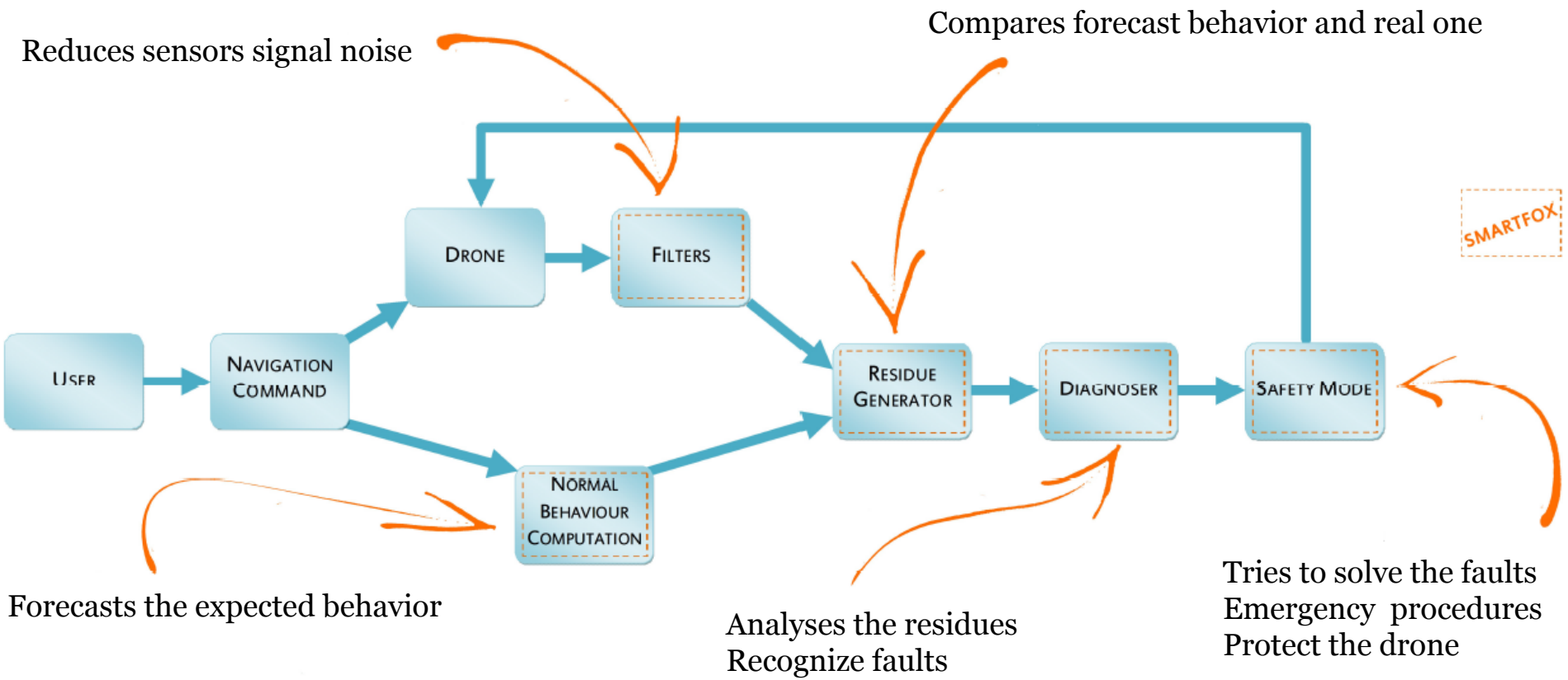
Safety procedure:

⇒ fault “Obstacle_bottom” is found

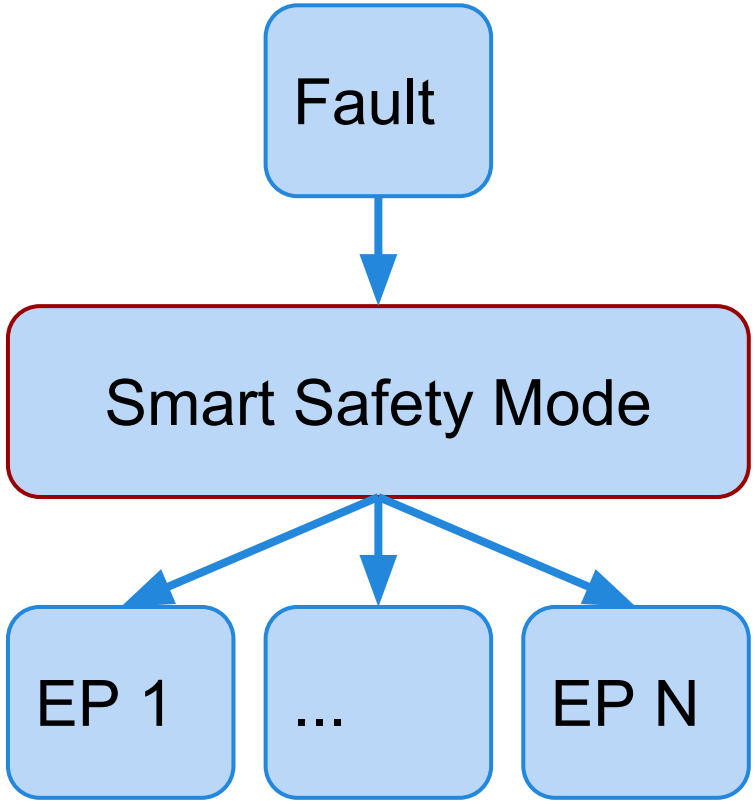
⇒ fault “Obstacle_front” is found

Functionalities, technical description

General description of the Smartfox Application



Functionalities, technical description



SaFety Mode (SFM):

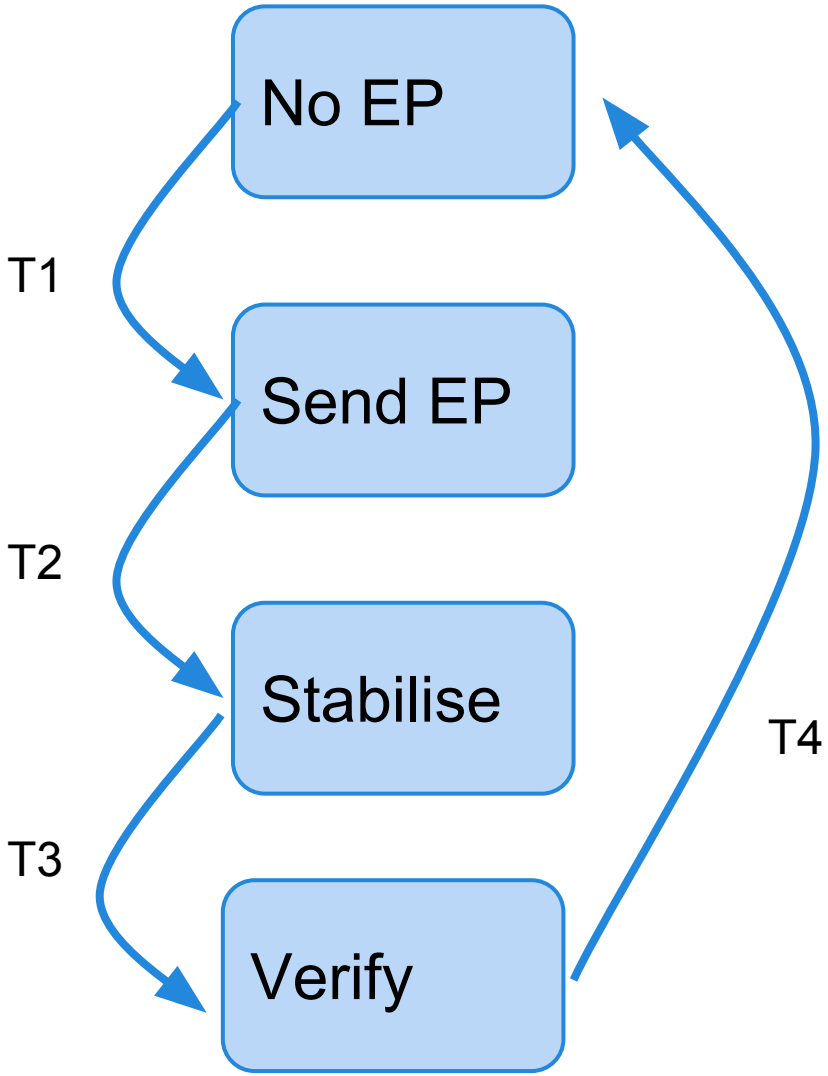
⇒ Uses fault sent by diagnoser

⇒ Chooses right emergency procedure (EP)

⇒ Disables user commands and sends emergency commands

⇒ After EP
if drone state OK
enables user commands

Functionalities, technical description



States:

⇒ No EP: no EP activated
⇒ Send EP: Send emergency procedure
⇒ Stabilise: Send a no motion order to the drone
⇒ Check if the drone is in a safe state

Transitions:

⇒ T1: if a fault is detected
⇒ T2: if emergency procedure is finished
⇒ T3: if stabilisation procedure is finished
⇒ T4: if a new fault occurs

Improvements

- Start Smart Fox as a separated application so that it is usable with any other program.
- Be able to use other diagnosis methods (active diagnosis, fault-learning)
- Diagnosis the Wifi communication, the takeoff and landing
- Implement a more complete drone model

Thank you for your attention !

Questions ?