Issues:

As suggested in (ITPM) our team conducted a brainstorm to identify the risks and issues that could be present in the solution for this project. There are several knowledge areas listed in the risks of an IT project, but we focused on areas that applied to implementation of the solution specifically.

**Costs:**

Budget is a major issue for this project, after speaking with a Mathex Judge it was clarified that AMA would not be able to provide any financial assistance for the system.  
The markers and scorers at the Mathex competition are all volunteers, and the audience members and schools are not charged for their attendance. AMA has a budget of $0.  
  
There is no free way to implement this system due to the following factors; all potential solutions require purchases of either hardware of software in order to operate, setting up the system on the day requires labour time, maintenance of the system requires labour time, hardware or software failure will incur fees to replace them. Technically the development time also costs AUT money, and has already incurred costs within our team.

**Possible Solutions:**

The system would require a sponsor to be completed, whether the client is willing to take this on, or AUT or some other unknown stakeholder.

Future costs could be covered by advertising within the system, however this may make the system less attractive and inconvenient to users.

**Users:**

The users of this system potentially include parents, markers and scorers. Information from the judge gave us insight into who exactly the markers and scorers are. They are volunteers, mostly consisting of teachers and are often older and unlikely to have much technical knowledge.

The markers are the front line, the people who the competitors approach to give their answers, and they mark what is correct. Each marker is responsible for marking two teams, and the process is already complicated enough that some mistakes are made.

The Mathex competition has been running for 18 years so far, and has not changed much since the first competition. The pen and paper system is tried and true for the markers and scorers, and changing this system is unlikely to be received well initially.

On top of this, the markers and scorers are not picked early, and are mostly unknown until close to the competition date. Training is brief because it is simple, there would not be any time to teach these users how to use the system without error.

**Possible Solutions:**

There are some alternative ways to implement the system that may aid in this problem. This is based around the availability of the system per user, and we explore this further in the following issues.

Rather than asking each marker to input the score for a team, we can ask the scorers to do this, and ask for compliance from AMA’s end to organise who these scorers will be. A scorer is usually responsible for collecting the scores from multiple markers and so they could update the system.

Otherwise, an employed or volunteer single scorer who is well versed with the system could gain permission to attend the event and gather scores to update the leaderboards.

**Effect on event sentiment:**

Audience members currently watch the competitors race across the venue to run their scores. While we are yet to see the competition unfold before our eyes, videos and descriptions of the event would infer it is an exciting event to watch.  
We thought about how implementing a version of the system where users could see the scores on their personal devices. Rather than watching the competition before them, parents and other audience members will be spending time looking at their phones, missing out on the action.  
Although the innate problem that the issue seeks to solve is the confusion of who is winning the competition, the thrill and mystery of this will be eliminated by its implementation. Therefore, it may not necessarily be beneficial to introduce.

**Possible Solutions:**

While the client initially suggested allowing spectators to have the leaderboards on their personal devices, it is possible to set up a projector or screen in the event venue. This way the spectators are still seeing over the main event, much like at any sports or music event, the screens are there to compliment, rather than replace the atmosphere.

**Distraction to competitors:**

This refers directly to the solution supplied above. A large screen in the venue is likely to cause distraction for the competitors. Where normally they would be focused on the math questions that they are given, there would now be a large leaderboard in full view for them, which is likely to distract and cause more tension as they watch other competitors climb up the board and keep a close eye on their own score.

The competitors are kids, most younger than 13, the competition is supposed to be a fun experience rather than a source of stress. (Add a reference for blind competition vs open)

**Possible Solutions:**

Instead of installing a screen, only allow the spectators see the scores so that there is no longer a distraction for the competitors. We are aware that this solution directly contradicts the previous solution, this is a major dilemma and a significant contributing factor to the project’s infeasibility.

**Suboptimal infrastructure available:**

As outlined in the study (refer to section), there is little available infrastructure for a system to be installed. Hardware would need to be supplied to boost the signal from one, or potentially two access points. The connection here is not aimed at supplying internet to 500 or more concurrent users.

At this time, we are not sure whether there is suitable space for a local network to be set up, further inspection of the venue is required here.

**Possible Solutions:**  
TODO

**Health & Safety:**

TODO (notes; for hardware)

**System Failure:**

TODO (notes; disruption of the competition)

**Marketability:**

TODO (notes; lack of need for the system, some already available that AMA could choose to invest in anyway)