RPA Process Definition Document

Bot name: "Sports Inviter bot"

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For: [PUA] [Virtual] Power Up Automation 2019

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Authorization

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Prepared by	Arun Kumar Asokan	06/30/19
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Project Document Revision History

Date	Author	Reviewer	Approver	Ver	Changes made
06/03/19	Arun Kumar Asokan			1.0	Initial Draft
06/13/19	Arun Kumar Asokan			2.0	Updates and amendments
06/23/19	Arun Kumar Asokan			3.0	Added additional mitigation of risk steps
06/30/19	Arun Kumar Asokan			3.1	Final draft for PUA submission

Introduction

1. Purpose of the document

The Process Definition Document outlines the business process chosen for automation using UiPath Robotic Process Automation (RPA) technology.

The document describes the sequence of steps performed as part of the business process, the conditions and rules of the process prior to automation and how they are envisioned to work after automating it, partly or entirely. This specifications document serves as a base for developers, providing them the details required for applying robotic automation to the selected business process.

2. Objectives (Problem to Solve)

To make life easier for people organizing and / or part of teams involved in various outdoor team sports/games (e.g. cricket, baseball, soccer, football, field hockey etc.) to plan and prepare in advance to participate, track, notify and report on 'who', 'what', 'when' and 'where' information of different games in a league or tournament.

The notification will have the upcoming game details, venue details (name and direction), weather updates on the game day of the Venue and trip details (duration and distance) for the players.

2.1 Process key personas

- Game Organizers: Management team responsible for organizing tournaments and games.

- Team Captains/Mangers: Person responsible to be single point of contact of the team to communicate game schedule, venue details and player availability.

- Team members (including captains): Players actually involved in the game.

2.2 Automation opportunity

The game schedules are notified manually and players have to go to different places to get game details, weather details and trip details. The automation opportunity here is to provide single source for all the game, weather and trip details and in addition to this automatic notification of the game. This will make players life easy and organizer life even better.

3. Business objectives and success/acceptance criteria

Key business objectives/values include:

Reduce the time taken and manual effort on repetitive tasks to communicate game details, improve quality by removing manual error and increasing stakeholder satisfaction in whole process of participating in the games.

- **Game Organizers:**
Improve team's participation in the tournament/league. Having all the games schedules in a Calendar will help them better organize and communicate changes to the games.
For instance, assume a tournament has 5 different divisions A, B, C, D & E and each division has 10 teams. Having 5 google calendar each for league will help the Organizer to access different data of the tournament.

- **Team Captains/Mangers:**
Team captains don't not have to manually share game details and track each team member's availability for the game.

- **Team members (including captains):**
Single source of information on all upcoming games including venue, weather and trip details in one place and automatic reminder for the game. Location feature in Google calendar will be helpful when they start the trip.
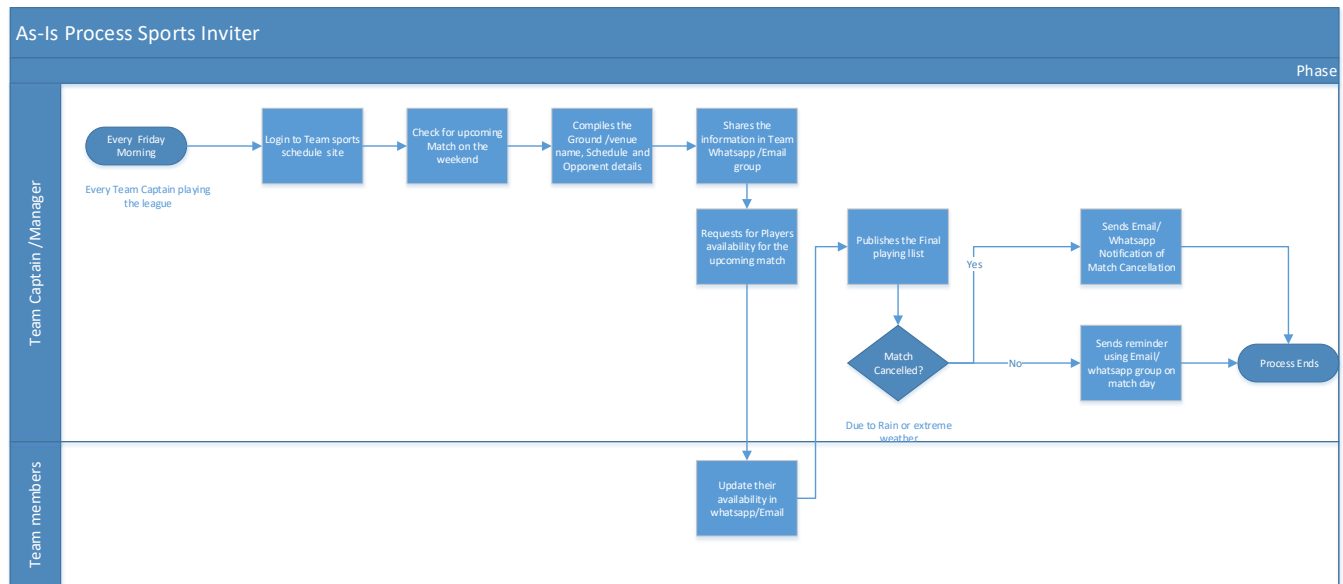
Success Criteria:

- Primary: Calendar invite will not be sent even if this information is missing

  ▶ Sending the Calendar invite with Game details [Primary]

  ▶ All the teams transaction status are updated with "Success " or "Failure" [Primary]

- Secondary: Calendar invite will be sent even if this information is missing

  ▶ Updating the calendar invite with Weather condition of the venue [Secondary]

  ▶ Updating the calendar invite with Trip details (distance and duration) from players home to venue [Secondary]

Acceptance criteria:

  ▶ The Organizers are able to view all the team game calendar invite in the shared calendar

  ▶ Team Captains and members are able to view, accept or reject the calendar invite.

  ▶ Calendar Invite has the correct upcoming weekend game details for the team.

  ▶ Team captain can easily track the player's availability from the Calendar.

  ▶ Team members are able to get the weather condition and trip details and make informed decisions on the game.

  ▶ Team members are able to use the Location link to navigate to the venue on the game day.

  ▶ Calendar invite is not sent if game details or venue details or player email id's are missing.

4. Business Process Flow
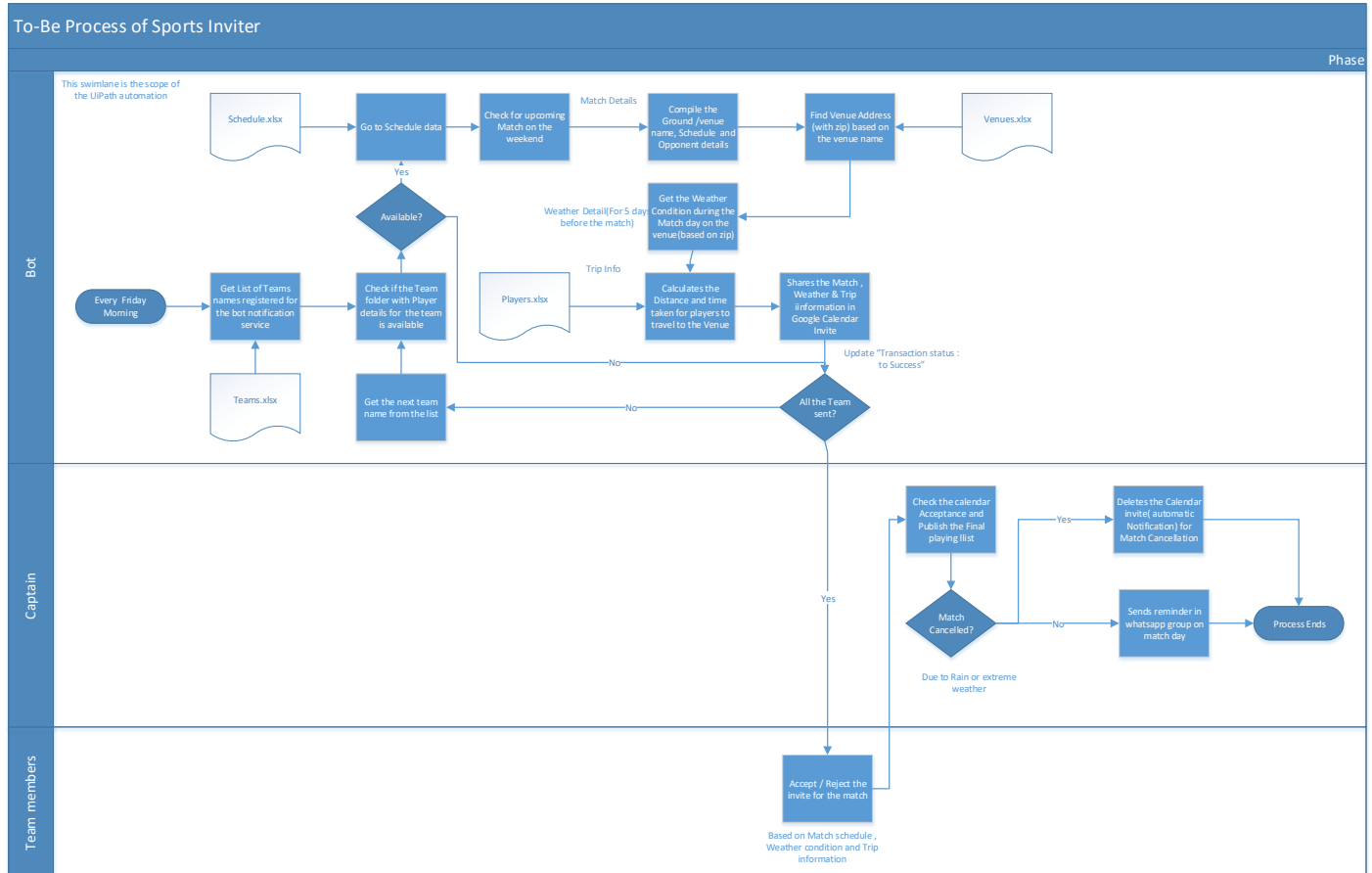
4.1 AS IS process model

4.2 AS IS process Descriptions

Team captain or manager accesses the upcoming match details like venue, opponent and date for their team from a website or any other data source and communicates it to the team players. The team players will send acknowledgement of the availability for the game to the captains/mangers. Who then uses this list and confirms the final team playing the game that upcoming weekend.

The organizers have no idea if the teams and players are intimated on the upcoming matches

In case the game is cancelled the team, the captain/mangers sends a cancellation note

4.3 TO BE Process model

The entire process flow depicted in the "Bot" swim lane is automated with UiPath Studio and GSuite Calendar Component (UiPath Go!).

The venue Weather details are received from https://openweathermap.org/api and Google Location for plyer Trip details from from https://developers.google.com/maps/documentation/directions/start

4.4 TO BE process description [Bot]

1   STEP 1: Game Scheduler bot will read the 'teams.xlsx' to get the name of teams registered for the bot notification service. Write a log.

2   STEP 2: Pick the first/next team name and check if the team folder name with Player.xlsx is present in the input folder, if not present set the transaction status to "Failed! Calendar invite not sent" and write a log.

3   STEP 3: If team folder exists and players.xlsx is available for the team then open Schedule.xlsx and find the upcoming 'match date' for the 'team name'. If no more teams then exit. Write a log.

4   STEP 4: Check if all the mandatory inputs fields of the game are present in schedule.xlsx and if not set Game On" flag to false

5   STEP 5: Check if there is a game in the upcoming weekend for the team if not then the process stops with "No game scheduled this week for the 'team name' " and not set Game On" flag to false

6   STEP 6: If "Game On " is false then pick the next team name (STEP 2)) [Business Exception set the transaction status to "Failed! Calendar invite not sent" and write a log

7   STEP 7: If "Game On " flag is True ,the 'match date' matches the upcoming weekend, get the "a) Game details" opponent team name, venue name and game start and end time [calendar invite start and end time]. Write a log.

8   STEPS 8: If 'Venue name' pulled from the 'schedule.xlsx' is missing in the 'Venues.xlsx' then stop the process with text "Venue of the match is not available" and pick the next team name (STEP 2) set the transaction status to "Failed" and write a log

9   STEP 9: Based on 'Venue name' find the 'Venue address ', 'Venue zip' and 'Google map link' from Venues.xlsx this is the b)"Venue Details". Write a log.

10 STEP 10: If 'Venue address' or 'Venue Zip' arguments for "Venue details" is empty, the process stops and pick the next team name (STEP 2) [Business Exception] set the transaction status to "Failed" and write a log

11 STEP 11: Use the 'Venue zip' from STEP 7 to find the weather condition for the venue during the 'match date' from 6 A.M till 9 P.M [using openweathermap.com API] this is the c)" Weather Condition"

12 STEP 12: Check for error in response (response code <>200) from openweathermap.com API, if error then assign 'weather details 'to "Something went wrong, cannot get Weather details for this venue zip" [Application exception] and write a log

13 STEP 13: If no error (response code = 200) but the response from API is empty then display "Weather details are available only for 5 days before match day" and write a log

14 STEP 14: Load the "Players.xlsx" into a data table and loop trough the data table for email id.

15 STEP 15: Read the "Players.xlsx" file to get all the players email id (check not empty before add) in to an array [Calendar invite recipients], if any email id is empty then break the loop (as calendar module will fail for any empty email id array entry) and pick the next team name (STEP 2), set the transaction status to "Failed"   [Business exception] and write a log with player name.

16 STEP 16: Loop trough the data table for address and finding the trip details

17 STEP 17: if "Home Address" is empty skip (don't call the google location API) and move to the next player and write a log with player name

18 STEP 18: else For each player get their home address and use the Google Location API to find the Trip details: 'Distance' and 'Duration' from player home to venue.

19 STEP 19: Check for error in response (response code <>200) from google location API, if error then display "Something went wrong, cannot get trip details for this player" and proceed to next player [Application error] and write a log with player name

20 STEP 20: If no error (response code = 200) get the Trip details updated and proceed with the next player and write a log with player name

21 STEP 21: At the end of the loop all the d) "Trip details" of the players will be captured

22 STEP 22: Compile the calendar invite 'event title' [Player Vs Opponent on Match date between start time and end time]

23 STEP 23: Compile the calendar invite 'event description': a) Game Details + b) Venue Details + c) Weather Conditions+ d) Trip details

24 STEP 24 : a) Location: Venue address, b) invite recipients: player email array, c)Calendar title: 'event title' & d) description: 'event description' , check all the parameters are not empty, if empty Stop the
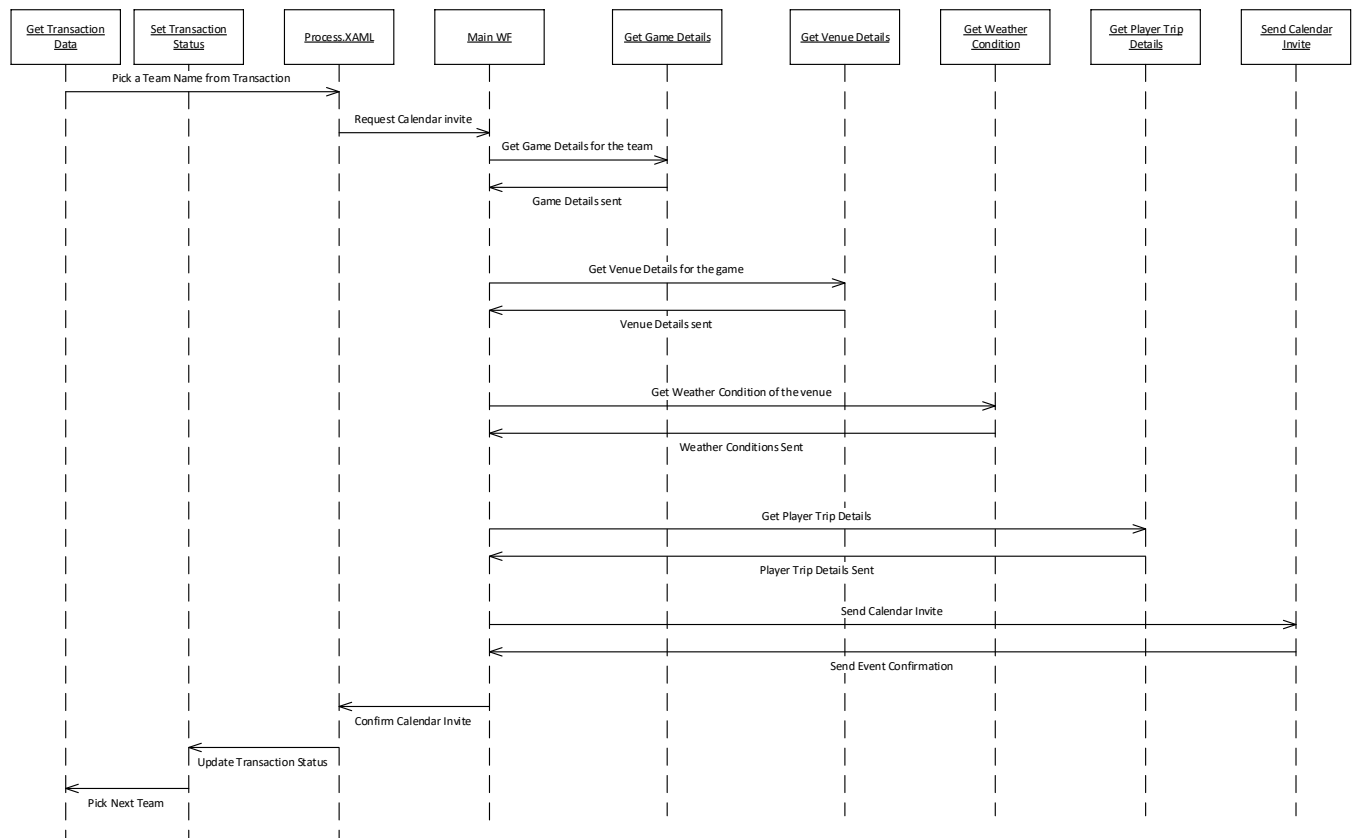
process and pick the next team name (STEP 2) and set the transaction status to "Failed" [Business exception] and Write a log

25 STEP 25: Use the Gsuite activity to send out the Calendar invite with these parameters.

26 STEP 26 : Check that the Calendar Event ID and Event Link are not empty, if Empty then log a message "Calendar invite not sent for the match" and the transaction status "Failed" [Application Exception]- and Write a log

27 STEP 27: Output the Event Link will be appended to the transaction status "Success" and Write a log "Calendar invite sent and Transaction number is complete"

28 STEP 28: Pick the next team name (STEP 2) [Happy Path ends]

4.4.1 TO BE framework used

Re-Framework is used to process different transactions for different teams (it uses the transaction from "Teams.xlsx" and not queue).Each row in Teams.xlsx is a transaction and for each team all these modules are executed and the transaction status of "Success! Calendar Invite sent" or "Failed! Calendar Invite not sent" is updated back in "Teams.xlsx" once the transaction is completed.

4.4.2 Modules used

a. Get Game Details from Schedule Module

- Input: Team name
- Steps: use the team name and get the game details from Schedule.xlsx
- Output: team 1 , team 2, venue name, game date, start and end time

b. Find Venue Address and Zip Module

- Input: Venue name
- Steps: Use the venue name and find the venue address from Venues.xlsx
- Output: address, zip & google map link

c. Get Weather conditions based on Zip Module (Open Weather map API) [Reusable]

- Input: Game date, Venue zip , Weather API end point & Weather API Key
- Steps: Open Weather map will use the venue zip and compile the weather condition of the venue in the game date (from 6 A.M to 9 P.M)
- Output: weather condition on Game date on the venue

d. Calculate Trip details for players Module (distance and duration using Google Location API) [Reusable]

- Input: Origin address , destination address, Google API key, Google Location API endpoint
- Steps: Google Location API will calculate the distance and duration based on the origin and destination addresses
- Output: Distance and Duration

e. Send Calendar invite module (Google Gsuite Calendar API) [reusable]

- Input: Invitees email id's, Event Title , Event Description, Date, start and end time, location, Google API Key, Google client ID and client Secret
- Steps: Gsuite UiPath activity will use all the inputs to send out the Calendar invite and returns a confirmation in form of Event ID.
- Output: Google Calendar Event ID

4.4.3 Inputs file formats

- Teams.xlsx –

Field Names	Type	Example
Team name	String	LazzyLADS
Tournament	String	DCL_Summer
Result	String	Success! Calendar Invite Sent

- Schedule.xlsx

Field Names	Type	Example
No.	String	1
Date	String	5/4/2019 , 5/18/2019
Team 1	String	LazzyLADS
Team 2	String	Cruisers
Venue	String	Fort Worth Cricket Ground
Start time	String	07.30 AM , 11.30 AM
End Time	String	11.30 AM , 03.30 PM

- VenueDetails.xlsx

Field Names	Type	Example
Ground Name	String	Fort Worth Cricket Ground
Zip	String	76119
Address	String	2900 Joe B Rushing Rd, Fort Worth, TX 76119
Google map link	String	https://goo.gl/maps/Wi6CVQ5NijC6hoKJ7

- Players.xlsx

Field Names	Type and format	Example
Player name	String	Arun
Email	String	arun@gmail.com
Address	String (house number, street name, City, State, zip)	1234 lilly street, Fort Worth, Tx, 76134

5. Scope and limitations

5.1   Minimum Pre-requisites for automation

Please check the document Prerequisites.pdf in the documentation folder of the project.

5.2   Required Access

- Need UiPath Studio installed
- Need to Register for Google Account & Open weather map(Please check prerequisite.pdf)

5.3   Limitations and Out of Scope

- Screen scraping to create the input files like Team names, schedules and venue details are out of scope as they differ for each game and website. This automation sticks to least common denominator in order for the features to work for any outdoor sport (with or without website). Note: If the sport has a website with all the tournament, schedule and team details, please feel free to customize it for your own sport based on the website layouts.
- The Open weather API can only predict weather conditions for 5 days out.
- Email validations for the players are not done in this automation.

5.4   Assumptions:

- Google map works for the particular location.
- Open Weather Map is available for the Venue Zip.
- The player Home address are in the right format, which can be recognized by google map.
- Players are using Car to travel to the venue.
- Input folders and files are available and accessible by UiPath.

6. Risks

Risks	Mitigation	Validations
Calendar invite not sent due to bad data	• Transaction status is getting logged in 'Teams.xlsx" if status is Failed someone has to intimate the respective teams.	• After scheduled run, the bot administrator should check the transaction status.
open weather map service is down	• If weather details are not available, calendar invite will be sent out with no weather details.	• Bot administrator can check the logs if the weather details are available or not.
Google cloud service – 'Location' is down	• If trip details are not available, calendar invite will be sent out with no trip details.	• Bot administrator can check the logs if the trip details are available or not.

Google cloud service – 'Calendar' is down	• Bot admin needs to inform the teams subscribed that the calendar service is down	• Bot Administrator can check the logs for 'Calendar Event Id and link' if that is not available.

7. Business Exceptions Handling

7.1 Known Exceptions

a) If any of the components for "Game details" (e.g. Venue name, opponent name, opponent team name, and game start and end time) are empty the process stops and pick the next team name and continue the steps.

b) If 'Venue address' or 'Venue Zip' arguments for "Venue details" is empty, then process stops and pick the next team name and continue the steps

c) Read the "Players.xlsx" file to get all the players email id (check not empty before add) in to an array [Calendar invite recipients], if none of the players email id exists then process stops and pick the next team name and continue the steps

d) a) Location: Venue address, b) invite recipients: player email array, c)Calendar title: 'event title' & d) description: 'event description' , check all the parameters for the GSuite calendar activity are not empty, if empty Stop the process and pick the next team name and continue the steps

7.2 Unknown Exceptions

For all the other unanticipated or unknown business (process) exceptions, the robot should capture the error message screenshot.

8. Application Exceptions Handling

8.1 Known Exceptions

a) Check for error in response (response code <>200) from openweathermap.com API, if error then assign 'weather details 'to "Something went wrong, cannot get Weather details for this venue zip".

b) Check for error in response (response code <>200) from google location API, if error then display "Something went wrong, cannot get trip details for this player" and proceed to next player.

c) Check that the Calendar Event ID is not empty, if Empty then log a message "Calendar invite not sent for the match.

d) If inputs files are already open for edit, the WF breaks

8.2 Unknown Exceptions

For all the other unanticipated or unknown application exceptions/errors, the robot should capture the error message screenshot.

9   Use Case Metrics

a) Time taken to send a game invite (every week): 10mins vs 10 sec
b) Time taken to track player availability (every week) : 20 mins vs 5 sec
c) Player satisfaction(which increases participation) on finding relevant data on the game (every week) : 50% vs 90%

10 Future Enhancements

- Updated weather condition in the calendar invite every day until the game day.
- If game is cancelled intimate the teams and players by cancelling the calendar event.
- Extend the framework to have options to send invites for a) a single game b) all the games in a group c) entire tournament with multiple groups and d) even multiple tournaments.