Abstract
In this project, we present our
- Context aware mobile application
  management system architecture in sample
  Smart Workplace Scenario.
With our proposed,
- Middleware
- Modelling technique
  (Binary Context Tree)
- Reasoning technique
  (Formal Language Based Logic Rules)

Introduction
- Context is any kind of information that is
  collected from environment with special
  functionalities as acquisition, modelling,
  reasoning and distribution.
- These functionalities are executed by
  Middleware as abstract layer.
- If this obtained context data used by
  systems then, these systems are called as
  Context Aware Systems.
  -Intelligent & special systems

Challenges
- Modelling method must be
  simple & fast & well-structured & flexible.
- Reasoning method must be
  structured & standard & reusable.
- Current methods do not enable all of
  these requirements at the same time.

Contributions
- To solve above challenges, we propose
  - Priority Based Binary Context Tree
    as modelling technique.
  - Formal Language Based Logic Rules
    as reasoning technique.
  - Context Tuple as
    $C = \langle \text{Existence}, \text{Location}, \text{Activity} \rangle$
    for smart workplace scenario.

Modelling Service - Binary Context Tree

Components:
- Two type sensor (signal & location) in Data Collector Module
- Context Aware Application
- Wireless Networks
- The Proposed Middleware
- Distributed Access Point Control Units

Benefits:
- Extensible
- Scalable
- Fast

Reasoning Service-Formal Language Based Logic Rules

<table>
<thead>
<tr>
<th>Context</th>
<th>$&lt;E, L, A&gt;$, $3$-tuples</th>
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<tbody>
<tr>
<td>Alphabets</td>
<td>$E, L, A, E^<em>, L^</em>, A^*$</td>
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<tr>
<td>Logic Rules</td>
<td>$E^* = \text{Disconnect State (Not Available)}$ $E^<em>A^</em> = \text{Employee is not in his own room and not working}$ $EL^<em>A^</em> = \text{Employee is not in his own room and working}$ $ELA^* = \text{Employee is in his own room and working}$ $EL^* = \text{Employee is in his own room and not working}$ $ELA = \text{Employee is in his own room and working}$</td>
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Benefits:
- Flexible structure
- High level abstraction
- Service Based

References: