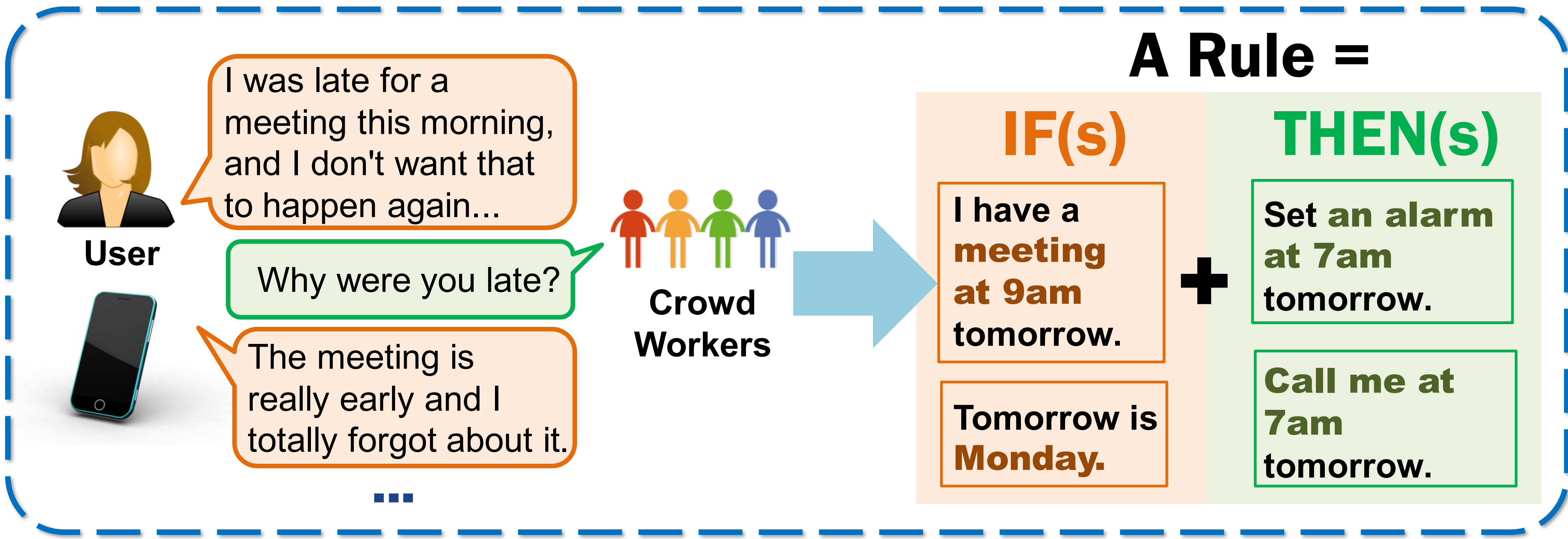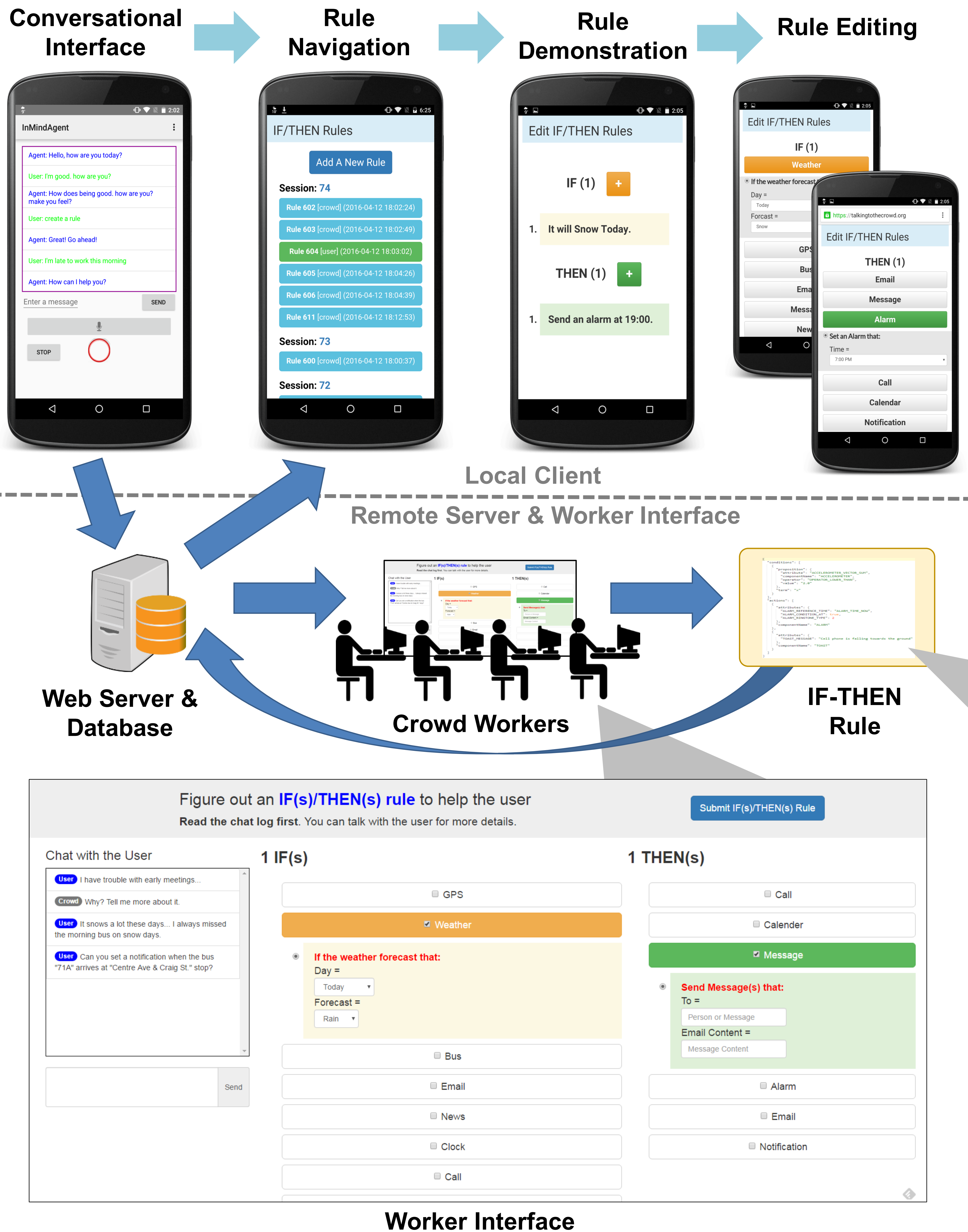# InstructableCrowd

Creating **IF-THEN** Rules
via **Conversations** with the **Crowd**

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tinyurl.com/
HiCrowd

User: I was late for a meeting this morning, and I don't want that to happen again...

Why were you late?

The meeting is really early and I totally forgot about it.

Crowd Workers

...

A Rule =

IF(s)	**THEN(s)**
I have a **meeting at 9am** tomorrow.	**Set an alarm at 7am** tomorrow.
Tomorrow is **Monday.**	**Call me at 7am** tomorrow.

Conversational Interface → **Rule Navigation** → **Rule Demonstration** → **Rule Editing**

Local Client
Remote Server & Worker Interface

Web Server & Database

Crowd Workers

IF-THEN Rule

Worker Interface

Conversations with the Crowd

crowd: Hi, what can I help you with?
user: it was snow last night and I was late for work and missed an important meeting this morning..
crowd: Would you like a weather alert?
crowd: What would you like us to do?
user: I missed an important meeting at 9am..
crowd: What time do you usually wake up?
user: 7am
crowd: Would you like to wake up earlier if it snows? Is 1 extra hour enough?
user: sure

user: I don't want to be late for home too often, otherwise my wife would get angry at me
crowd: So how may I help you
crowd: when do you want to get an alert?
user: can you send Amy a message saying I might be home late
user: yes
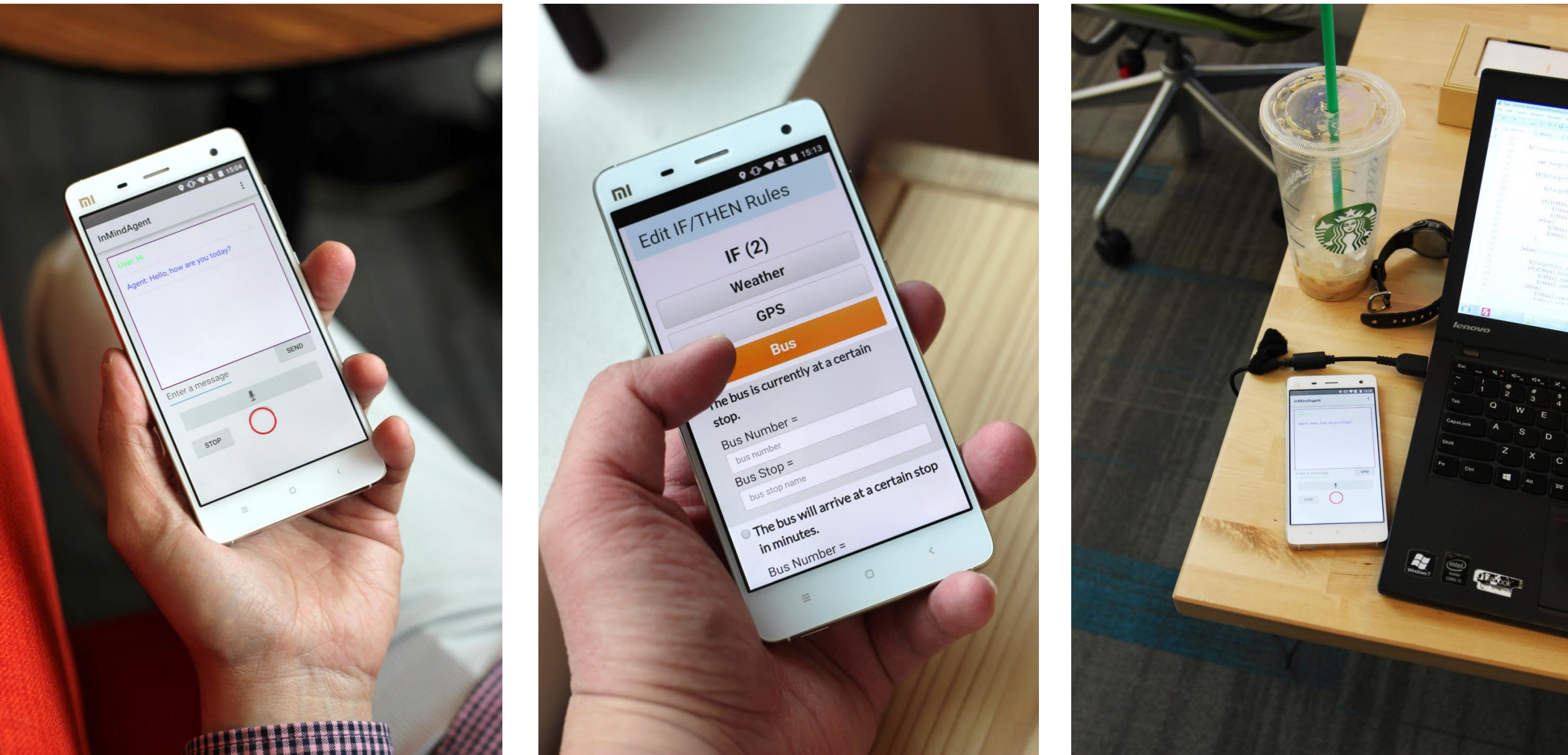**crowd: what time do you want this to be sent?**
user: if I'm going to be late
crowd: what time is late?
user: for our scheduled dinner on my calendar

```
{
    "actions": [
        {action_1}, ... , {action_n}
    ],
    "conditions": [
        {condition_1}, ..., {condition_n
        }
    ],
    "ruleID": "rule_1"
}
```

The general JSON representation for an IF-THEN rule

How good are the created IF-THEN rules?

| | Rule Level (Effective Rate) | | | Sensor / Effector Level (Precision / Recall / F1-score) | | | | | | Attribute Level (Accuracy) | | Time (MM:SS) | |
| | | | | IF | | | THEN | | | | | | |
	IF	**THEN**	**IF + THEN**	P	R	F1	P	R	F1	**IF**	**THEN**	Mean	SD
User Only	58.3%	88.9%	**55.6%**	.935	.819	.873	.979	1.00	.989	96.4%	93.5%	2:45	1:23
Crowd Only	50.0%	83.3%	**44.4%**	.944	.778	.853	.944	.931	.937	90.2%	92.1%	4:53	2:01
Crowd + User	**66.7%**	**94.4%**	**66.7%***	.958	.861	**.907**	.972	.972	.972	95.9%	97.6%	7:09	2:44

"Crowd + User" significantly outperforms both the "User Only" and "Crowd Only".